

**DOES THE LANGUAGE OF CHILDREN BORN LESS THAN 28-WEEKS
GESTATION DIFFER FROM LANGUAGE-AGE MATCHED PAIRS?**

A thesis submitted in partial fulfilment of the

**requirements for the Degree
of
Master of Speech and Language Therapy
in the
University of Canterbury
by
Mary E Phillips**

University of Canterbury

2006

CONTENTS

Abstract.....	1
 Chapter 1.	
Review of Literature.....	3
1.0 Introduction.....	3
1.1 Language Outcomes of Children born Severely Premature.....	3
1.2 Prematurity and Working Memory.....	9
1.3 Measures of Working Memory.....	14
1.4 Conclusion.....	17
 Chapter 2.	
Method.....	19
2.0 Design.....	19
2.1 Participants.....	19
2.2 Material and Instrumentation.....	21
2.3 Language Tests.....	22
2.4 Scoring of Tests.....	24
2.5 Inter-rater reliability.....	24
2.6 Statistical Analysis.....	25
 Chapter 3.	
Results.....	26

3.0 Chronological Age Differences.....	26
3.1 Celf-P Subtest Scores.....	27
3.2 Working Memory Measure.....	28
3.3 Absurd Cards Inference Measure.....	29
3.4 Money Tree Inferencing and Working Memory.....	30
3.5 Summary.....	30

Chapter 4.

Discussion.....	31
4.1 Main Aim of the Study.....	31
4.2 Results of Language Testing.....	32
4.3 Differences in Chronological Age.....	32
4.4 Working Memory and Language	33
4.5 Main Findings and Conclusion.....	35
4.6 Strengths and Weaknesses of this Study.....	36
4.7 Further Studies.....	37

Acknowledgements.....	38
------------------------------	-----------

References.....	39
------------------------	-----------

Appendices.....	47
------------------------	-----------

Appendix A: Score sheet for the CLPT.....	48
Appendix B: Score sheet and picture for the Money Tree Story.....	50
Appendix C: Examples of Absurd Card Pictures.....	52
Appendix D: List of Absurd Card Pictures.....	53
Appendix E: Transcriptions of Absurd Card Measure from two preterm children to illustrate the differences in language within the Preterm Group....	55
Appendix F: Transition to School Reports for two of the Preterm Group to illustrate the differences in abilities and deficits of the children within the Preterm Group and also to give an indication of the types of intervention the Preterm Group had access to as preschoolers.....	68

List of Tables

Tables

1. Profile of preterm group showing age in months, gestation in weeks, gender and language-age.....	15
2. Profile of control group showing age in months, gender and language-age.....	16
3. Examples of CLPT sentences, true/false values and target words.....	18
4. Mean and SD of ages in months.....	21
5. CELF-P subtest scores showing mean, SD and range for both groups over all subtests	22
6. Mean and SD scores for the Word Recall Subtest.....	23
7. Summary table for measures of the Absurd Card percentage correct scores.....	24

List of Figures

Figure

- | | |
|--|----|
| 1. Percentage correct scores on Word Recall subtest of CLPT... | 23 |
| 2. Percentage correct scores on the Absurd Cards..... | 26 |

Abstract

In New Zealand, approximately 10% of births are considered premature, that is less than 37 weeks gestation. With advances in medical technology, young infants are surviving gestation periods as few as 23 weeks. It is expected that many of these severely premature infants will demonstrate some problem in their academic, or cognitive function including language functioning. It is agreed that children who are born severely premature often present with language problems, the nature of the difficulties are not clear. Research examining language abilities that involve cognitive functions such as inference generation have demonstrated that children born prematurely exhibit difficulties with phonologic short-term memory and executive function. Language tasks such as inference understanding require children to integrate real-world knowledge with the linguistic information to generate and produce language that is more complex.

The aim of this study was to discover if the language of children born severely premature differs from that of language-age matched peers. This study examined high-level language abilities of school-age children born severely prematurely, specifically, language tasks that involved executive functions including working memory, story inferencing, and recognising absurdities.

Six children who were born less than 28 weeks gestation participated in this study. Their results on the above measures were compared to a language-aged matched comparison group, determined by performance on a standardised test. It was hypothesised that the children born severely premature would not differ from their language-age matched peers on measures of general language ability but differences would exist on measures of language processing and inferencing. The findings overall

showed little difference between the preterm group and their language-age matched peers on measures except for the measure of chronological age. Although no group difference was found for the measure of working memory, a larger variance on this measure was observed in the preterm group.

CHAPTER 1

Review of the Literature

1.0 Introduction

Although most infants are born following a normal period of approximately 40-weeks gestation, in New Zealand, approximately ten percent are considered preterm or premature. Preterm infants are those born prior to 37-weeks gestation (World Health Organisation, 1977). Prematurity is common, but extreme prematurity is not; it constitutes less than two percent of all recorded births. The degree of prematurity determines the risk of complications. Babies born at less than 28-weeks gestation are likely to have more complications that are serious than their full-term peers. With advances in medical technology, young infants are surviving gestation periods as brief as 23-weeks.

It is expected however that many of the infants will demonstrate some problem in their academic or cognitive function including language function (Jansson-Verkasalo, Valkama, Vainionpää, Pääkkö, Ilkko and Lehtihalmes, 2004; Anderson and Doyle, 2004; Aylward, 2002). This study included children who had participated in an earlier study, which investigated outcomes of children born at less than 28-weeks gestation. The specific aim of the current study was to examine the language abilities of a group of seven-year-old children born at less than 28-weeks and compare them with children matched on language age.

1.1 Language Outcomes for children born severely premature.

Although it is generally considered that children who were born severely premature often present with language problems, the nature and cause of the difficulties is not clear. A number of factors have been considered to affect language outcomes for children born premature, such as poor environmental support (Easterbrooks, Harmon, & Harmon, 1987; Macey, Harmon, Easterbrooks, 1987; Saigal, den Ouden, Wolke, Hoult, Paneth, Streiner, et al., 2003; Nadeau, Tessier, Lefevre, Robaey, 2004), preterm status (Kilbride, Thorstad, & Daily, 2004) and birth weight (McCarton, Brookes-Gunn, Wallace, Bauer, Bennett et al., 1997; Briscoe, Gathercole, & Marlow, 1998; Klebanov, Brooks-Gunn, & McCormick, 1994; Luciana, 2003; Hansen & Greisen, 2004). For instance, McCarton et al. (1997) compared a group of 8-year-old children who were born with very-low-birth weight to a group of children who were preterm but heavier as well as a chronologically age-matched control group. They found all preterm children presented with reduced receptive language scores on the Peabody Picture Vocabulary Test-Revised (Dunn and Dunn, Robertson and Eisenberg, 1981), however this was particularly noticeable in the lower weight group. In addition, the heavier preterm group had higher performance IQ scores and higher receptive language scores, although these scores were still significantly below what was expected based on standardised norms. Although factors such as low birth weight may have some influence on outcome, they are not sufficient to explain the broad variability in language outcomes reported in the literature (Duncan, Schneider & Robertson, 1996).

One factor that is thought to influence outcomes is the developmental stage at which children are assessed (Jansson-Verkasalo et al, 2004). Jansson-Verkasalo et al.

(2004) investigated language abilities in children born at less than 34-weeks gestation and weighing less than 1500 grams at birth. Language was assessed at two and four years of age and results were compared to a chronologically age-matched group. In particular language comprehension, expressive vocabulary and expressive syntax and morphology were explored. They found that the language impairments persisted with age, but there were some differences in the presentation of the language difficulties the preterm children exhibited, across ages. For instance, at two years of age, preterm children presented with significantly poorer auditory comprehension, reduced maximum sentence length, and slightly poorer use of grammatical markers compared to their age-matched peers. There were no vocabulary difficulties noted. By four years of age, preterm children continued to present with lower auditory comprehension scores but the differences in vocabulary emerged, as did word-finding difficulties. In addition, differences between the groups in their use of morphological markers were no longer evident at four years. Syntax was not assessed at age four; however, an auditory discrimination task was added. Children who were born prematurely were significantly poorer on vowel and consonant discrimination when compared to their age-matched peers. Similarly, McCarton et al. (1997) followed young preterm children who had received educational intervention and compared them to young preterm children who did not receive intervention. The intervention was administered prior to the age of 3 years and the children were examined at 3 years, 5 years and 8 years of age. Although intervention improved cognitive and language performance at 3-years of age, the school-age preterm children demonstrated persistent language difficulties at five and eight years of age. Difficulties included reduced verbal IQ scores and poor vocabulary. The authors highlighted the need to assess children who

are born prematurely at different developmental stages and in particular at school age even if they have received some form of intervention.

Another factor that has been thought to influence outcomes for children who are born premature is the nature of the task that the children are asked to perform. One finding that has been consistent in the literature is that children who are born premature often perform within normal limits on standardised tests, yet, they typically score significantly below their chronologically age-matched peers (McCarton et al., 1997; Duncan et al., 1996). It has been proposed that standardised tests may not be good indicators of general language functioning and may not identify subtle language deficits that may be present (Briscoe, Gathercole & Marlow, 1998). One possible reason for that finding may be the type of standardised tests used. Duncan et al. (1996) noted that studies examining language functioning in children who were born prematurely typically used language measures that assessed single word level language abilities. In order to examine discourse and complex language skills, Duncan et al. examined the language of forty preterm children and compared them with forty peers matched for chronological age, gender, and socioeconomic status. Although they used standardised tests to assess the language abilities of both groups, they chose tasks that assessed more complex language skills. Four standardised tests were used: The Bus Story: A Test of Continuous Speech (Renfrew, 1991) which assesses the ability to retell a story; The Action Picture Test (Renfrew, 1988) which assesses connected speech through the collection of language samples; The Recalling Sentences subtest of the Clinical Evaluation of Language Fundamentals-Revised (CELF-R) (Semel, Wiig & Second, 1987), which involves the children listening to sentences and repeating them back; and, The Northwestern Syntax Screening Test

(NSST) (Lee, 1971) which measures expressive and receptive syntax. Although the preterm children as a group scored within normal limits on the standardised tests, their performance was significantly different from the chronologically age-matched peers on all but the receptive subtest of the NSST. Specifically, the preterm children, as a group, provided less information on the Bus Story and produced sentences that were reduced in sentence length and complexity. Duncan et al. concluded that language tasks that are more complex and that involve the integration of auditory memory, comprehension and production of information should be included in the assessment of language for preterm children as they may be better at identifying subtle language deficits that may not be identified by simpler language tasks.

Another possible explanation for the finding that children who are born premature often perform within normal limits on standardised tests is that the tools used do not assess specific cognitive difficulties such as memory that can affect language performance (Briscoe et al., 1998) Briscoe et al. (1998) compared the short-term memory and language abilities of children aged three years to four years, who were born severely premature to that of chronologically age-matched peers. The language tests administered included two measures of vocabulary knowledge: 1) the British Picture Vocabulary Scales-Long Form (BPVS) (Dunn, Dunn, Whetton & Pintilie, 1982) which assessed receptive vocabulary and 2) the Oral Vocabulary portion of the McCarthy Scales of Children's Abilities (McCarthy, 1970) which assesses expressive vocabulary. In addition, the Bus Story Test of Continuous Speech (Renfrew, 1985) was administered. Two short-term memory measures were used: digit span, which involves the child listening to randomly presented digits and recalling them, and a non-word repetition task. Although the preterm group generally

performed more poorly than their language-age matched peers, significant differences were noted only for the receptive vocabulary and the amount of information produced on the BPVS. No differences were noted between groups on expressive vocabulary, sentence length or short-term memory scores. However, additional analysis of individual children who scored below normal limits on the Bus Story revealed that those children did perform more poorly on short-term memory tests and language measures. The authors concluded that prematurity may not provide sufficient explanation for language difficulties, however these children may be at risk for memory difficulties which underpin language performance. Therefore, assessments that evaluate both memory, and those language abilities influenced by memory may be useful when examining language outcomes in children who were born premature.

One area of memory that has been shown to be impaired in children who are born premature is working memory (Woodward, Edgin, Thompson & Inder, 2005). Working memory involves the simultaneous storage and processing of information. Gathercole & Baddeley (1993), proposed that working memory was important for language comprehension. Some tasks are thought to involve greater working memory demands than others (Just and Carpenter, 1992; Gathercole & Baddeley, 1993; Montgomery, 1995). One type of language task that involves memory is inference generation (Lehman-Blake & Tompkins, 2001; Moran & Gillon, 2005). Language tasks such as inference understanding require children to integrate real-world knowledge with the linguistic information to generate and produce language that is more complex. Inferencing is one of the areas commonly referred to in the literature as higher-level language function. Researchers now agree that children born severely premature will have some type of higher-level- language disabilities at school age

(Gathercole & Baddeley, 1993; Duncan et al., 1996; Briscoe et al., 1998; Letts & Leinonen, 2001; Alyward, 2002).

Another task that may involve working memory is the understanding of verbal absurdities. Recognising absurdities, like inference generation, requires the child to link language heard, his knowledge of world events, his own experience, some internalised 'scripts' and his own linguistic skills (Letts & Leinonen, 2001). Letts & Leinonen found a developmental progression in the acquisition of inferencing ability skills over time, thus children who have language impairment in such areas as phonological, syntactic, semantic or pragmatic, show some level of developmental delay in their inferencing abilities. However, little is known about the ability of children who are born premature to understand higher-level language tasks such as inferencing and verbal absurdities. Research into these types of tasks, as well as continued research into working memory ability is necessary for better understanding the language of these children.

1.2 Prematurity and Working Memory

There are many definitions of working memory in the literature, most are comparable in their general philosophy but differ only slightly in their wording. The early definitions were simple in nature but definitions have grown more complex as research has contributed to understanding. Two examples of change over time are: 1) Baddeley, (1986) defined working memory as a "temporary storage of information that s being processed in any of a range of cognitive tasks" (p. 34). 2) Bayliss, Jarrold, Gunn & Baddeley, (2003) improved on this view and postulated that working memory "...refers to a limited capacity system responsible for the simultaneous

storage and manipulation of information during the performance of cognitive tasks” (p. 71). Two further aspects which add to the depth of knowledge are definitions from: Gibbs & D’Esposito (2005) who described working memory as “...those processes that support the short-term maintenance of the relevant information when it is no longer present to guide behaviour” (p. 212), and Jarrold & Towse (2005), who offered the view of working memory “as the ability to hold in mind information in the face of potentially interfering distraction in order to guide behaviour” (p. 1). All these theories lead to a similar conclusion, that working memory is important to high-level cognitive function. There are variations on the way working memory is conceptualised, but the basic principle is that there are limited capacity systems with fixed resources available for processing language. A person with inefficient language processing will require greater resources to perform this task. Similarly, a limited working memory capacity will have the ability to process only simple language tasks, while the more complex tasks will be impaired.

The ability to store and process information permits working memory to have a huge role in complex cognition, including language comprehension. Baddeley’s (1986) model of working memory is made up of three components, the central executive, the phonological loop and the visuospatial sketchpad.

1. The Phonological Loop is one of the two storage systems in working memory. It has a role that is specific to the storing the verbally coded information (Baddeley, 1986). There are two components to the phonological loop; a passive storage system and an active rehearsal system. The passive storage system represents information in a phonological code, which decays over time. The active system involves a subvocal rehearsal process that refreshes the decaying information so it can be maintained over a longer period. The subvocal process also takes non-auditory information such as

printed matter and turns them into phonological information that can be stored. The phonological loop depends on activation (Baddeley & Logie, 1999), and activation is limited in both amount and duration. The phonological loop can retain information for a set amount of time.

2. The Visuospatial Sketchpad is the system that specialises in the storage and maintenance of visual and spatial information. It is said to store and process verbal information that is transformed to visual information (Gathercole and Baddeley, 1999). The system is not thought to play a major role in auditory comprehension.

3. The Central Executive is concerned with the control and coordination of the two storage systems and has the ability to activate and retrieve information from long-term memory; it is also involved in focus and attention switching (Baddeley & Logie, 1999). The controlled action and automated action credited to Shallice's Supervisory Attentional System (SAS) are also important in this area as they help to explain how the central executive works (Gathercole & Baddeley, 1993), for example, an automated routine could be compared to the automated skills required to drive a car, this system requires few resources, while the controlled system requires extra attention and consequently is more demanding of resources.

Just & Carpenter, (1992) proposed that working memory had two systems, storage and processing, and that these two systems compete with each other for restricted capacity. Their computational theory had storage and processing systems driven by the same source; this was called 'activation'. In comprehension, written and spoken information is programmed and thus 'activated'. Information is considered to be in working memory when the activation levels are above the minimum threshold. Activation is the fuel that drives the two functions of storage and processing, and each

system has an associated activation level. If the amount of activation required exceeds what is available to perform a given task, for example comprehension, then activation that is maintaining 'old' information can be deallocated', causing forgetfulness.

Briscoe et al. (1998) asked the question "if deficits in phonological short-term memory are present in children born premature, is it likely that premature birth represents a risk factor for language impairment?" (p. 655). The authors found this to be the case, and proffered two possible explanations, 1) that the lower scores can be accounted for by lower overall functioning or 2) that the preterm group generally had lower environmental support. They did not assert that prematurity was the cause of language impairment but that as a result of the trauma of premature birth, these children are possibly more at risk for a language problem. The basis of that problem being impairment in phonological short-term memory. Luciana, Lindeke, Georgieff, Mills & Nelson (1999) hold that "working memory is a process that involves holding relevant information in the mind for brief intervals so that the information can be used to guide future actions" (p. 521), this led to the conclusion that working memory is an important factor necessary for children, particularly at school-age, to perform the progressively more complex organisational tasks required. Their study established that deficits in the region of working memory were commonly found in children who were born preterm. Harvey, O'Calloghan & Mohay (1999) found deficits in executive functioning in the extremely low birth weight population, and hypothesised that this may have been one of the factors responsible for the increased occurrence of learning disability in these children and in addition found specific weaknesses within this group in the area of working memory.

Anderson and Doyle (2004) wanted to establish the severity of the problems in executive function in children born very preterm or with extremely low birth weight (ELBW). This study looked at executive function in detail and discussed it in terms of goal-directed behaviour and aspects which were important to a child's cognitive functioning, behaviour, emotional control and social interaction. There were many areas covered in this study, working memory was seen as only one of the cognitive processes involved. As such, the authors found that problems with executive function cannot be investigated as an individual disorder, but should be considered as part of a range of impairments. Anderson and Doyle found that the ELBW or severely preterm group scored significantly lower than their normal birth weight peers on all cognitive measures, working memory included, but that the preterm children involved showed global deficits rather than any specific patterns of deficit. The authors suggest the importance of this research is related to the long-term need to develop therapy programmes that are more effective for children born severely preterm. To accomplish this requires a better understanding of the cognitive function of this population is required. Woodward et al. (2005) agree with other researchers who state that impaired working memory is a distinguishing feature of children born preterm. Woodward et al. (2005) agreed with a prior definition of working memory as "the process of holding task-relevant information in mind for brief intervals to then use the information to guide future actions" (p. 2579) agrees with Luciana et al., (1999) who found specific deficits in spatial working memory. Their study cohort of 92 extremely preterm children aged two years old was compared to 103 full-term controls. They measured object working memory and discovered the preterm group were 1) much less flexible in their responses, 2) found it much more difficult to learn new

behaviours, and 3) found it more difficult to encode new information into working memory” (p. 2585). These deficits were evident at the age of two years.

Luciana et al., (1999) also found similar results in school-age children born preterm and researchers agree that many problems only surface at school age within this population (Klebanov, Brooks-Gunn, & McCormick, 1994; Duncan, Schneider, & Robertson, 1996; Horwood, Mogridge, & Darlow, 1998; Saigal, den Ouden, Wolke, Hoult, Paneth, Streiner, et al. 2003; Luciana., 2003).

1.3 Measures of Working Memory

There are a number of ways to measure working memory. Daneman & Carpenter (1980) investigated working memory using a reading span task. Their rationale was that individual differences in reading comprehension reflected differences in working memory capacity, specifically a trade-off between processing and storage functions. In this test, subjects were asked to read a succession of sentences aloud at their own pace and recall the last word of each sentence. The test consisted of 60 unrelated sentences, each 13 to 16 words in length. The subjects were required to answer yes/no correctly to each of the questions. They were given several practice items at the two-sentence level before the test began and they were presented increasingly longer sets of sentences until they failed all three sets at a particular level, testing was terminated at that point. The level at which a subject was correct on two out of three sets was taken as a measure of the subjects reading span.

The reading span was used on 20 college students and the results were compared to the students verbal SAT (Scholastic Aptitude Test). The results showed the reading span test was closely linked to the verbal SAT scores, ($r(18) = .59, p < .01$) and even more closely linked to performance on the two comprehension assessments ($r(18) =$

.72-fact question and $r(18) = .90$ -pronoun reference questions), both $p < .01$. Readers performed worse who had smaller reading span than larger reading spans with a variation of between two and five and a mean of 3.15 ($SD = .93$).

In the second part of the experiment, the authors tested the listening version span of the Reading Span task. The test was modified to include a true/false component and the results were similar. The subjects were given a specific time in which to answer, that of 1.5 seconds, before the next sentence was presented. The subjects with larger listening spans found it much easier to comprehend than those subjects with similar working memory spans.

The Competing Language Processing Task (CLPT) (Gaulin & Campbell, 1994) was adapted from the Listening Span Task (Daneman & Carpenter, 1980), is a measure of verbal memory span in children. This task is designed to be used with children aged between 3.0 years and 6.11 years and as such, uses shorter and less complex sentences than those used by the previous authors in 1980. This is a listening task and the children are required to listen to a taped presentation of grammatically correct sentences. The sentences are in groups of two, three, four, five and six sentences. The children are asked to indicate if the sentences were true/false after each sentence, and are required to hold the last word of each sentence until the end of the given group of sentences. There is a sentence comprehension task as well as the word recall task. The authors found that the true/false component of this test remained relatively constant across the ages they assessed, the word recall component improved with age. The authors feel that with age comes increased working memory ability and/or a more competent distribution of resources in competing tasks.

Another measure that assesses working memory is the Non-word Repetition Task (NRT) (Dollaghan & Campbell, 1998). Subjects included 40 children aged between 6 years and 9.9 years and were part of an ongoing study of child language impairment. The children were required to listen to a taped presentation of non-words and then repeat them. There was a pause of approximately three seconds between each presentation of the non-word stimulus. The NRT comprises 16 words of increasing length with four words at each level: one syllable (CVC), two syllables (CVCV), three syllables (CVCVCV), and four syllables (CVCVCVCV). Scores were calculated as a percentage correct of the 96 possible phonemes. The children were presented with each word once, after being prompted that they would hear some made-up words. They had been instructed to repeat the words exactly the way the instructor had said them. The individuals response was scored at both phoneme and syllable level. Credit was given for each correct phoneme; with no credit given for an incorrect phoneme. Any additions were counted as errors and thus received no credit. Syllables were counted separately. The results were reported as percentage of phonemes correct (PPC), there were three non-word lengths (1PPC, 2PPC, 3PPC, 4PPC) and a score for the entire set of total number of phonemes correct (TOTPPC). The results showed that 3PPC, 4PPC and TOTPPC scores were significantly lower ($p<.01$) for the language impaired group. In both groups, scores were lower for the 4PPC than for PPC's of shorter length. In the group with language impairment, 3PPC appeared to pose particular problems with scores significantly lower than PPC's of both longer and shorter length. The issue of whether performance on the non-word repetition task could be explained by the phonetic inventories of the individuals assessed could be accounted for by phoneme-by phoneme scoring, added to the other information collected by articulation and language testing. It was found that all the

consonants repeated incorrectly were in fact in the phonetic inventory of the children and 93% of the errors reported had been produced correctly at another point within the non-word repetition task. Thus, the non-word errors were not contributable to a restricted phonetic inventory. This study showed that children with some form of language impairment repeated non-words less accurately. It was stated by the authors that “levels of non-word repetition performance were extremely powerful predictors of language status” (Dollaghan & Campbell, 1998, p.1144) and that successful performance on non-word tasks assumed a certain level of language learning and working memory ability. Weismer, Tomblin, Zhang, Buckwalter, Chynoweth & Jones (2000) agreed and found that the non-word repetition test was a reliable measure to assess language with no cultural bias.

1.4 Conclusion

The literature suggests that children who are born premature do present with language difficulties, however the nature of the difficulties is not clear. A number of factors have been shown to affect the outcome including the nature of the task being used. This study examined the ability of children who were born severely premature to perform high-level language tasks which are thought to involve working memory, and compare them to language-age matched peers.

Specifically, the following questions were addressed: Do children who are born premature differ from language-age matched peers on tasks of working memory? and Do children who are born premature differ from language-age matched peers on higher-level language tasks such as inference generation and verbal absurdities?

It was hypothesised that the children born severely premature would not differ from language-age matched peers on measures of general language ability but differences would exist on measures of language processing and inferencing.

CHAPTER 2

Method

2.0 Design

This study employed a between group design. A comparison of the language abilities was made between of a group of six children born severely preterm and their language-age matched controls.

2.1 Participants

Preterm Group

The participants of the preterm group were six, 7 year old children born < 28 weeks gestation age and who weighed <1120 grams at birth. The age range was from 6.9 years to 7.10 years and there were four boys and two girls. All the subjects spoke English as a first language and were currently in year two of primary education. The children were randomly selected from a much larger group of preterm children involved in a previous language study (Foster-Cohen, 2003). The children had all been enrolled at the Champion Centre, which is an early intervention centre for preschoolers. They received early intervention training throughout their preschool years in such areas as speech-language therapy, physiotherapy, occupational therapy, developmental therapy/early intervention teaching and music therapy. This is a multidisciplinary team approach working in partnership with the family to give the best service to the child.

The language abilities of this group were mixed, ranging from typical language development to significantly below their peers. For example: at least one of the

children in this group was funded under the Ministry Of Education, using Ongoing and Reviewable Resourcing Schemes (ORRS). Some participants in the preterm group also demonstrated the following co-morbidities: Attention Deficit Hyperactivity Disorder (ADHD), Developmental Dyspraxia, additional non-specified developmental disabilities and some ongoing medical concerns. Exclusionary criteria were (a) absence of speech, (b) mental retardation, (c) Autistic Spectrum Disorder (ASD) and Traumatic Brain Injury (TBI). A profile of the preterm group can be seen in Table 1.

Table 1. Profile of preterm group showing age in months, gestation in weeks, gender and language-age

Participants	1	2	3	4	5	6
Age in months	85	87	81	90	86	94
Gestation age in weeks	27	26	23	27	23	24
Gender	F	M	M	M	M	F
Language-age	82	82	64	80	89	78

Control group

The control group were six, 6-7 year old children with typical development, selected from the schools that the preterm group were currently attending. The control group were language-age-matched to their preterm group peer using standardised measures. The age-range of the control group was from 6.1 years to 7.8 years. All the subjects spoke English as a first language and were currently in year two of primary education. The control group were matched to the preterm group based on (a) gender, (b) no hearing impairments, (c) no specific or general learning difficulties, (d) no

obvious medical condition, (e) no current or past speech or language difficulties. A profile of the control group can be seen in Table 2. (All children were full-term gestation).

Table 2. Profile of control group showing age in months, gender and language-age

Participants	1	2	3	4	5	6
Age in months	82	80	73	81	83	78
Gender	F	M	M	M	M	F
Language-age	82	82	64	80	89	78

2.2 Materials and Instrumentation

Procedures

All participants were assessed on measures of general language and executive functioning tasks such as working memory, story inferencing and recognising absurdities. All assessments were digitally recorded using a Sony Portable MiniDisc recorder, MZ-NH1 and a Sony Electret Condenser Stereo Microphone. Parental consent to participate was obtained from all participants prior to assessment. Testing took place in the preterm subject's homes and at school for the control group. Testing was completed over two or three sessions of up to 60 minutes each. All standardised tests were administered according to the standardised procedure. The non-standardised tests were administered according to the protocol used in the previous study. Each child was tested in a well-lighted room with minimized background noise. The order in which the tests were administered was kept constant. The researcher, a trained Speech-Language Therapist, administered all the tasks.

2.3 Language tests

Standardised Tests

1. The Clinical Evaluation of Language Fundamentals-Preschool Edition (CELF-P) (Semel, Wiig & Second, 1992). This standardised test uses six subtests to measure the expressive and receptive abilities of the children aged 3.0 years to 6.11 years and compares performance to normative data. This test was previously used with this population and even though most of the children are now older than the ceiling age, it was decided to use it to compare their progress. The receptive language subtests are; linguistic concepts, which evaluates the child's ability to comprehend oral directions that involve early-acquired linguistic concepts, it involves quantifiers and increases in length from one to three-level commands. Basic concepts; which evaluates the child's ability to interpret one-level oral direction that contain attributes, dimensions & size, direction, location & position, number, quantity and equality. Sentence structure; which evaluates the child's ability to comprehend and respond to spoken sentences that increase in length and structural complexity. The expressive subtests are recalling sentences in context; which evaluates the recall and repetition of spoken sentences. Formulating labels; which evaluates the child's ability to name pictures that represent nouns and verbs and word structure; which evaluates the child's knowledge and use of early acquired morphological rules and forms.

2. The Competing Language Processing Task (CPLT) (Gaulin & Campbell, 1994) is a modified version of the Daneman and Carpenter (1980) task designed to measure working memory in children aged 6.0 years to 12.6 years. This assessment taps storage and processing capabilities of working memory, as it assesses the truth of a

sentence and then requires the child to remember the last word of the sentence. The subjects were required to listen to lists of grammatically simple true/false sentences and indicate the correct true/false response while attempting to retain the last word of each sentence in a given list. Examples of test items are presented in Table 1.

Table 3. Examples of CLPT sentences, true/false values and target words to be recalled.

Sentence	True/False	Target word
Trains can fly	False	Fly
Fish can swim	True	Swim

The true/false and word recall tasks were scored separately. Both tasks were assigned a percent correct score.

Non-standardised tests

1. Absurd Cards.

The children were shown twenty coloured picture cards. Each card was a simple coloured line drawing on a white background. Each picture was a familiar scene with something that did not make sense. For example: a child using a banana as a telephone or a man dressed in a suit, holding a briefcase, with a bucket on his head. The child was asked to describe what was funny or odd about the picture. The children's response to the question and picture, measured how they retrieved information from long-term memory, brought that information back into the present and were able to make sense of the information along with the picture. There were 20 cards used and the score was given as a percentage of correct answers.

2. The Money-Tree story.

The children were asked to listen to a story. They were able to follow the story by looking at a picture on each page that referred to the part of the story being read. At the completion of each page the children were asked an inferential question about what was happening in the story. For example: “why is Miss McGillicuddy looking out of her window?” or “what are the leaves on the tree?” There were 15 questions asked and the children were scored on how close their answers were to the storyline. This measured how the children were able to make inferences from a simple story. The score was given as a percentage of correct answers.

2.4 Scoring of Tests

Raw scores for all assessments were obtained. The raw scores for the CELF-P were converted to standard scores with a mean of 100 and standard deviation of fifteen. The CLPT raw scores and remaining non-standardised raw scores were reported as percentile scores.

2.5 Inter-rater reliability

An independent speech-language therapist who was blind to group classification rescored twenty percent of the tests. Point to point reliability was used with all rescoring because a precise measure of agreement was required (Portney & Watkins, 2000). Results of a series of Pearson Product Moment Correlation procedures revealed a high inter-judge agreement across all measures, with a correlation of 98.9% on the measure of the Absurd Cards, 84.5% on the measure of

the Money Tree Story and 89.9% on the measure of the CLPT, (Gaulin and Campbell, 1994).

2.6 Statistical Analysis

Standard scores were computed for the standardised tests while percentage scores were computed for the non-standardised tests. A series of t-tests were conducted to compare the preterm and control groups on all measures. A Mann-Whitney test was used in place of the parametric t-test when the assumption of normality or equal variance was found to be violated through a pre-test with the statistical software (SigmaStat 2.03).

CHAPTER 3

Results

Results of a series of t-tests conducted to compare the preterm group (N=6) and the language-age (LA) matched controls (N=6) were reported for all measures including chronological age, language abilities, working memory abilities, and inferencing abilities.

3.0 Chronological Age Differences

A summary of the descriptive statistics for the measure of chronological age was shown in Table 1. Results of a t-test conducted to compare the preterm group and the LA matched group on the measure of chronological age revealed that the preterm group had a significantly higher average chronological age than the LA matched group. ($t = 3.276$, $df = 10$, $p = 0.008$).

Table 4. Mean and standard deviation of ages in months.

Group Name	Mean	SD	Range (Min-Max)	
Preterm	87.167	4.446	13	(81-94)
Control	79.500	3.619	10	(73-83)

Results of a series of t-test conducted to compare the preterm and control groups for the measures of Receptive, Expressive and Total Language Scores on the CELF-P (Semel, Wiig, and Second, 1992), showed that there was no significant group difference in any of these measures: Receptive Language ($t = 0.228$, $df = 10$, $p =$

0.825), Expressive Language ($t = 0.364$, $df = 10$, $p = 0.723$), Total Language ($T = 47.00$, $n = 6$, $p = 0.240$).

3.12 CELF-P Subtest Scores

Results of a series of t-tests performed to examine differences on scores derived from individual subtests of the CELF-P (Semel et al., 1992) revealed no significant group differences on any of the subtests (see Table 2), indicating that the preterm and control groups exhibited the same level of language abilities.

Table 2. CELF-P subtest scores showing mean, SD and range for both groups over all subtests .

	Preterm			Control			t-score	p-value
	Mean	SD	Range (min- max)	Mean	SD	Range (min- max)		
Linguistic Concepts	10.000	2.530	6.000 (7-13)	10.667	2.066	5.000 (8-13)	0.500	0.628
Sentence Structure	10.167	4.491	10.000 (3-13)	9.500	2.739	6.000 (7-13)	0.310	0.763
Recalling Sentences	10.833	1.472	4.000 (9-13)	11.167	2.317	6.000 (9-15)	0.297	0.772
Formulating Labels	9.500	2.665	7.000 (6-13)	8.500	1.517	4.000 (7-11)	0.799	0.443
Word Structure	8.000	2.966	9.000 (4-13)	8.000	1.789	5.000 (6-11)	0.000	1.000

Since measures from the Basics Concepts subtest failed the normality test, the results of a Mann-Whitney Rank Sum Test was performed to compare the preterm and control groups and the result revealed no statistically significant group difference ($t = 41.000$, $n = 6$, $p = 0.818$).

3.2 Working Memory Measure

Results of a t-test conducted to compare the preterm and control groups on the measure of Word Recall scores obtained from the administration of the CLPT test, failed to reveal any significant group difference ($t = 0.683$, $df = 10$, $p = 0.510$). Results of a Mann-Whitney Rank Sum Test conducted on the percentage correct scores for the Yes/No Subtest failed to reveal any significant group difference ($T = 31$, $n = 6$, $p = 0.24$). However, shown in Table 3, the preterm group appears to have a larger range for the measure of the Word Recall score Refer table 3 for scores.

Table 3. Mean and standard deviation scores for the Word Recall Subtest.

	Mean	Std Deviation	Range (Min-Max)
Preterm	30.167	26.918	62 (0-62)
Control	38.500	12.988	38 (17-55)

The difference in abilities within each pair, matched between the preterm and control groups, also appear to vary across the comparison pairs. The difference in the preterm group's performance on the measure of percentage correct of the Word Recall subtest is illustrated in Figure 1.

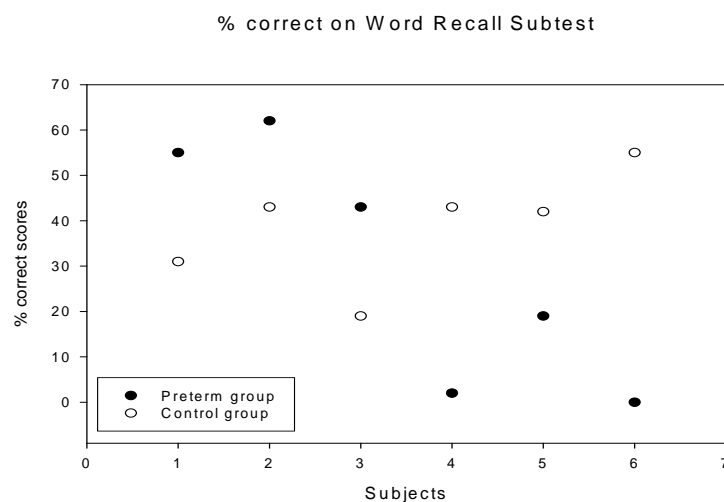


Figure 1.

3.3 Absurd Cards Inference Measure

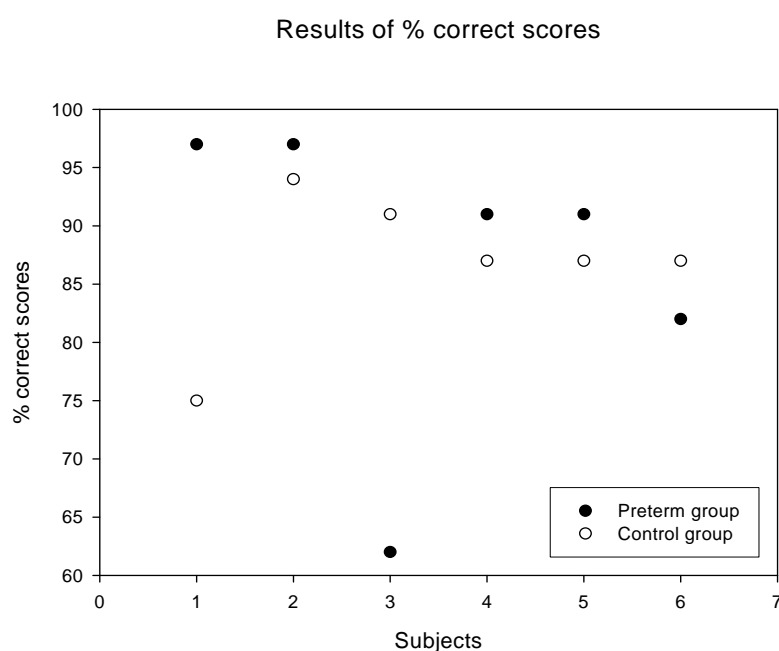
Results of t-tests used to compare percentage correct scores between the two groups on the absurd cards measure revealed no statistically significant difference between the two groups ($t = 0.0276$, $df = 10$, $p = 0.978$). Table 4 presents mean and standard deviation for the two groups. It is noticeable from inspection of Table 4 that the standard deviation and range within the preterm group were much higher than the control group.

Table 4. Summary table for measures of the Absurd Card percentage correct scores.

	Mean	SD	Range	(Min-Max)
Preterm	86.667	13.277	35	(62-97)
Controls	86.833	6.463	19	(75-94)

Visual analysis of Figure 2 revealed that the Absurd Card measures for the preterm group appears to be more dispersed than those for the control group.

Figure 2. Results of the percentage correct scores for the Absurd Cards



3.4 Money Tree Story Inferencing and Working Memory Measure

Results of a t-tests used to compare measure of percentage correct score obtained from the Money Tree Story Inference and Working Memory Measure between the preterm and control groups revealed no statistical difference ($t = 0.410$, $df = 10$, $p = 0.691$) suggesting that both the preterm group and control group appear to have gained an understanding of inferencing. Table 5 shows that the preterm and control groups performed similarly on this measure.

Table 5. Mean and standard deviation scores for the measure of the Money Tree Story of Inferencing and Working Memory.

	Mean	SD	Range (Min-Max)	
Preterm Group	76.500	9.072	26	(67-93)
Control Group	74.500	7.791	20	(67-87)

3.5 Summary

The findings overall show little difference between the preterm group and their LA matched controls on measures except for the measure of chronological age. In addition, although no group difference was found for the measure of working memory, a larger variance on this measure was observed for the preterm group.

CHAPTER 4

Discussion

4.1 Main Aim of the Study

The objective of this study was to examine the language abilities of seven-year-old children all born less than 28-weeks gestation and compare them to children who were matched on language-age. It was hypothesised that the children born severely premature would not differ from their language-age matched peers on measures of general language ability but differences would exist on measures of language processing, working memory and inferencing.

The control group comprised a language-age matched child for each member of the preterm group, sourced from children within the schools they were currently attending. Other methods of matching have been used in the past such as language impaired groups and language normal groups (Letts & Leinonen, 2001), full-term birth and chronological-age controls (Duncan et al., 1996; Jansson-Verkasalo et al., 2004), intervention groups and non-intervention groups (McCarton et al., 1997). McCarton et al. also compared heavier born preterm children to their lighter born preterm cohort. The method of matching used for this study was chosen as it had not been explored in depth before and thus provided a unique avenue for comparison. It was also particularly suited to the hypothesis which was that given a comparable general level of language competence, preterm children would show a deficit in the areas of inferencing, working memory and recognising absurdities when compared to their language-age matched peers.

4.2 Results of Standardised Language Testing

The results of the standardised language assessment did support the hypothesis, in that the children born severely premature did not differ from their language-age matched peers on measures of general language ability. Comparisons of the scores between the groups on measures of receptive and expressive language achieved using the CELF-P revealed both group with identical language-ages. These results were expected and supported the findings of McCarton et al., (1997), who found that children born preterm performed within normal limits but typically below chronological age expectations on standardised tests. None of the scores on the individual subtests of the CELF-P were significantly different revealing that there was no noteworthy difference in the language abilities between the two groups. This indicated that not only were the groups total language scores similar, they also presented with very similar language profiles with slightly more variability within the preterm group. It could be argued that the preterm group was no more homogeneous than any other group of children their age. McCarton et al., (1997) had found a difference in the receptive language abilities of preterm children who were born heavier compared to their lighter weight preterm peers. This was not evident in the current study which found that the receptive language abilities within the preterm cohort were variable with no apparent relationship existing between birth weight and receptive language abilities of the participants, indeed both the lightest and heaviest of the preterm group achieved the highest receptive language scores.

4.3 Differences in Chronological Age

The differences in chronological age between the preterm and control group were significant, but within each group there was a similar range of ages. Five of the

six language age matched group were chronologically younger than the preterm group with differences ranging from three months to sixteen months. One of the preterm group was five months younger than his language-age matched peer. This was unusual as it went against the trend.

4.4 Working Memory and Language

The hypothesis was not supported by the results of the working memory, language processing and inferencing assessments. On the measure of the Competing Language Processing Task (CLPT) neither the yes/no subtest nor the word recall subtest revealed any significant differences between the groups, although the standard deviation (SD) of the preterm group was considerably greater on the word recall subtest, revealing a far greater range of scores within the preterm group. This range was unexpected in that one child with a low score had performed well in standardised language assessment, exhibiting a language-age three months ahead of his chronological-age. Contrastively the other two preterm children with very low scores on this subtest exhibited reduced language-ages of nine and sixteen months when compared to chronological-age. The findings of the yes/no subtest were similar to those of Gaulin and Campbell (1994), who suggested that once beyond a certain level of ability, performance on this component of the test would remain relatively constant. In the current study, all the children in both groups with the exception of one member of the preterm group, achieved more than 90% correct in the yes/no subtest of the CLPT. The one low score of 50% was attained by a member of the preterm group. This child demonstrated some levels of anxiety which were evidenced by an apparent reluctance to respond and a disengagement from the task. The child in question may have chosen not to respond rather than offer a potentially incorrect

answer. Alternatively the child may not have known the answer and was therefore unable to respond. While the basis for the lack of response cannot be determined, his high levels of performance on all other assessments support the interpretation that anxiety played a part in his non-response. A further issue for consideration is how the children prioritised the weighting of the two sections of the CLPT, that is did they give priority to answering the yes/no questions or to remembering the final word. The two children who performed most poorly on the word recall subtest of the CLPT, both of whom are members of the preterm group, and are currently receiving ongoing interventions, also attained low language scores, particularly in the area of expressive language. However, both achieved above 90% in the yes/no subtest, possibly implying they placed a higher priority on this section of the CLPT. Briscoe et al. (1998) found working memory deficits in their preterm population often corresponded with reduced language abilities. Gaulin and Campbell (1994) found that the abilities in the word recall subtest had increased with age. This was not apparent in the current study; the word recall ability did not correlate with increased age and there was variation in ability across both groups, although the variation within the control group was less than the variation within the preterm group.

On the measure of the Absurd Cards and the ability to recognise absurdities, the results of the t-test failed to reveal any significant difference between the groups. As with the word recall subtest of the CLPT, the SD of the preterm group was considerably larger than that of the control group. In this assessment, individuals within the preterm group recorded the very lowest score for both groups and the highest score for both groups, indicating significant variation within the group. Of the six pairs of participants, four were evenly matched, with the preterm group scoring

slightly higher than their language-age matched peers on the measure of recognising absurdities. However, in two cases, the preterm element of the dyad scored notably either higher or lower than their peer. In general the children from both groups achieved scores above 60% correct on this measure, with ten of the twelve children scoring above 80% correct. It appeared that the task was of a degree of difficulty that all the children could achieve easily. This poses the question as to whether the task was difficult enough to accurately test the children's abilities, as it may be argued the scores achieved approximated ceiling effects. It was apparent from the results that by the age of seven years all the children had the ability to recognise simple absurdities and that to expose any subtle deficits at this age a more sophisticated or complex test may be required.

On the measure of the Money Tree inferencing task, no significant difference between the groups. It must be noted that the scoring of the Money Tree Story was subjective in that more than one interpretation could achieve a correct score for a given response. Consideration should be given to the existence of additional factors that may have influenced a child's ability to make inference in this task, including the child's attention to the visual cues provided by the picture book itself. However, while this variable may or may not have influenced ability to make inference, it did not feature in the scoring with children having as much or as little access to the pictures as they chose.

4.5 Main Findings and Conclusions

The preterm group who were language-age matched did not demonstrate significantly more difficulty with the tasks of inference, working memory and recognising

absurdities than their controls. The profile of the preterm group appeared to be similar to that of their language-age matched peers, suggesting that for some children who are born preterm, language development in all areas, including higher functioning language follows a typical course at a slower or delayed rate. The ongoing nature of this delay is beyond the scope of this study. It is accepted that standardised measures may not constitute the most reliable method in assessing the language of children born preterm (Briscoe et al., 1998). Other measures such as those used in the current study may provide more useful information when used to assess younger children (Foster-Cohen, 2003), than with children aged six to seven years. This leads to the suggestion that to locate the often subtle deficits in the higher level language functioning, more complex types of assessment may be required.

4.6 Strengths and Weaknesses of this Study

The small sample size impacted on the statistical power of any analysis with variability within the groups influencing the results. Many factors influence language development including prenatal brain development, heredity and language environment. From these factors, the only variable accounted for in this study was the prenatal brain development with children selected in the preterm group having experienced less than 28 weeks gestation. No measures were made of speech and language skills of the parents or siblings of the participants. Parental capabilities or motivation and resources may also have played a large part in the language development of the participants; however, as this was a follow-up study, these were not factors for inclusion in the study.

4.7 Further studies

The current study raises questions worthy of investigation, particularly regarding the impact of family influences on language outcomes of children born preterm. Specifically, continued examination of complex tasks and working memory with larger sample sizes are warranted. In addition, future studies that match children on language-age may provide greater insight into the nature of language impairment in children who are born premature. That is, examination of whether children born premature differ qualitatively as well as quantitatively from typically developing peers would enhance understanding and knowledge of how to assess and treat these children.

Acknowledgements

I would like to acknowledge my two supervisors, Dr Catherine Moran and Dr Susan Foster-Cohen, and thank them for their support and encouragement throughout the course of this study. I would also like to acknowledge my colleague Anne van Bysterveldt, without whose support and conviction that this could be completed, I would not have begun the journey. I must thank the children, parents and schools involved for their time and enthusiasm. You have all helped to make this exercise incredibly enjoyable. Lastly I would like to thank my husband for his patience and support throughout this time.

References

- Anderson, P.J., and Doyle, L.W. (2004). Executive functioning in school-aged children who were born very preterm or with extremely low birth weight in the 1990's. *Pediatrics*, 114(1), 50-57
- Aylward, G.P. (2002). Cognitive and neuropsychological outcomes: More than IQ scores. *Mental Retardation and Developmental Disabilities Research Reviews*, 8, 234-240
- Baddeley, A.B. (1986). *Working memory*. Oxford: Clarendon Press.
- Baddeley, A.D., and Logie, R.T. (1999) working memory: The multiple-component model. In Miyake, A., and Shah, P. (Eds.), *Models of working memory: Mechanisms of active maintenance and executive control* (pp28-61). New York: Cambridge University Press.
- Bayliss, D.M., Jarrold, C., Gunn, D.M, and Baddeley, A.D. (2003) The complexities of complex span: Explaining individual differences in working memory in child and adults. *Journal of Experimental Psychology*, 132(1), 71-92
- Briscoe, J., Gathercole, S.E., & Marlow, N. (1998). Short-term memory and Language outcomes after extreme prematurity at birth. *Journal of Speech, Language and Hearing Research*, 14, 654-666

- Daneman, M., and Carpenter, P.A. (1980) Individual differences in working memory and reading. *Journal of Verbal Learning and Verbal Behaviour*, 19, 450-466.
- Dollaghan, C., & Campbell, T.F. (1998) Nonword repetition and child language impairment. *Journal of Speech, Language , and Hearing Research*, 41, 1136-1146.
- Dunn, L.M., Dunn, L.M., Robertson, G.J., and Eisenberg, J.L. (1981) *Peabody Picture Vocabulary Test*. Circle Pines, Minn: American Guidance Service
- Dunn, L.M., Dunn, L.M., Whetton, C.W., & Pintilie, D. (1982) *British Picture Vocabulary Scale*. Windsor, U.K. : NFER Nelson Publishing Company
- Duncan, N., Schneider, P, and Robertson, C. M. T. (1996). Language abilities in five-through seven-year-old children born at or under 28 weeks gestational age. *Journal of Medical Speech-Language Pathology*, 4(2), 71-79
- Easterbrooks, M.A., Harmon, T.J., and Harmon, R.J. (1987). Impact of premature birth on the development of the infant in the family. *Journal of Consulting and Clinical Psychology*, 55(6), 846-852
- Foster-Cohen, S. Language comprehension development in children transferring from early intervention to school. Unpublished manuscript.

Gathercole, S.E. and Baddeley, A.D. (1993) *Working memory and language*.

Exeter. Lawrence Erlbaum Associates

Gaulin, C., and Campbell, T (1994). Competing Language Processing Task.

Perceptual and Motor Skills, 79, 55-64

Gibbs, S.E.B., and D'Esposito, M. (2005) Individual capacity differences predict working memory performance and prefrontal activity following dopamine receptor stimulation. *Cognitive, Affective & Behavioural Neuroscience*, 5(2), 212-221

Hansen, B.M., Greisen, G. (2004). Is improved survival of very-low-birthweight infants on the 1980's and 1990's associated with increasing intellectual deficit in surviving children. *Developmental Medicine & Child Neurology*, 46(12), 812-815

Harvey, J.M., O'Callaghan, M.J., and Mohay, H. (1999). Executive function of children with extremely low birthweight: A case control study.

Developmental Medicine & Child Neurology, 44(5), 292-297

Horwood, L.J., Mogridge, N., and Darlow, B.A. (1998). Cognitive, educational, and behavioural outcomes at 7 to 8 Years in a national very low birth weight cohort. *Archives of Disease in Childhood Fetal Neonatal Edition*, 79(1), 12-20

- Jansson-Verkasalo, E., Valkama, M., Vainionpaa, L., Paakko, E., Ilkko, E.,
Lehtihalmes, M.(2004). Language development in very low birth weight
preterm children: a follow-up study. *Folia Phoniatrica et Logopaedica*,
56(2), 108-119
- Jarrold, C., & Towse, J.C. (2005) Individual differences in working memory.
Neuroscience [Epub ahead of print]. Retrieved January 4, 2006, from the
PubMed database.
- Just, M.A., & Carpenter, P.A. (1992). A capacity theory of comprehension:
Individual differences in working memory. *Psychological Review* 99(1), 12-
149
- Kilbride, H.W., Thorstad, K., and Daily, D.K. (2004). Preschool outcome of less
than 801-gram preterm infants compared with full-term siblings. *Pediatrics*,
113(4), 742-747
- Klebanov, P.K., Brooks-Gunn, J, and McCormick, M.C. (1994). School
Achievement and failure in very low birth weight children. *Developmental
and Behavioural Pediatrics*, 15(4), 248-256
- Lee, L.L. (1971) *Northwestern Syntax Screening Test*. Evanston, Il: Northwestern
University Press.
- Lehman-Blake, M.T. & Tomkins, C.A. (2001) Predictive inferencing in adults with

right hemisphere brain damage. *Journal of Speech, Language, and Hearing Research*, 44, 639-654

Letts, C., & Leinonen, E. (2001) Comprehension of inferential meaning in language-impaired and language normal children. *International journal of language & communication disorders*, 36(3), 307-328

Luciana, M. (2003). Cognitive development in children born preterm: Implications For theories of brain plasticity following early injury. *Developmental Psychopathology*, 15, 1017-1048

Luciana, M., Lindeke, L., Georgieff, M., Mills, M., & Nelson, C.A. (1999) Neurobehavioural Evidence for working-memory deficits in school-aged children with histories of prematurity. *Developmental Medicine & Child Neurology*, 41(8), 521-533

McCarthy, D. (1970) *McCarthy Scales of Children's Abilities*. New York: psychological Corporation.

McCarton, C.M., Brookes-Dunn, J., Wallace, I.F., Bauer, C.R., Bennett, F.C., Bernbaum, J.C., Broyles, S., Casey, P.H., McCormick, M.C., Scott, D.T., Tyson, J., Tonascia, J., ND Meinert, C.L. (1997). Results at age 8 Years of Early intervention for low-birth-weight premature infants. *Journal of the American Medical Association*, 227(2), 126-132

- Macey, T.J., Harmon, R.J., Easterbrooks, M.A. (1987). Impact of Premature Birth on the Development of the Infant in the Family. *Journal of Consulting and Clinical Psychology*, 55(6), 846-852
- Montgomery, J.W. (1995) Sentence comprehension in children with specific language impairment: The role of phonological working memory. *Journal of Speech and Hearing Research*, 38, 187-189
- Moran, C. & Gillon, G. (2005) Inference comprehension of adolescents with traumatic brain injury: A working memory hypothesis. *Brain Injury*, 19, 10, 743-751.
- Nadeau, L., Tessier, R., Lefevre, F., Robaey, P. (2004). Victimization: A newly recognized outcome of prematurity. *Developmental Medicine & Child Neurology*, 46(8), 508-513
- Portney, L.G., & Watkins, M.P. (2000) *Foundations of clinical research: Applications to practice. (2nd Ed.)* New Jersey: Prentice-hall, Inc.
- Renfrew, C.E. (1988) *Action Picture Test-Third Edition*. Oxford: C.E Renfrew
- Renfrew, C.E. (1991) *The Bus Story; A test of continuous speech-Second Edition*. Oxford: C.E.Renfrew.
- Renfrew, C.E. (1985) *The Bus Story; A test of continuous speech-Second Edition*.

Oxford: C.E.Renfrew.

Semel, E. Wiig, E., & Second, W. (1992). *Clinical Evaluation of Language Fundamentals-Preschool-Preschool Edition*. San Antonio, TX: The Psychological Corporation

Semel, E. Wiig, E., & Second, W. (1987) *Clinical Evaluation of Language Fundamentals-Revised*. New York: The Psychological Corporation.

Saigal, S., den Ouden, L., Wolke, D., Hoult, L., Paneth, N., Streiner, D.L., Whitaker, A., and Pinto-Martin, J. (2003). School-age outcomes in children who were Extremely low birth weight from four international population-based cohorts. *Pediatrics*, 112(4), 943-953

Weismer, S.E., Tomblin, J.B., Zhang, X., Buckwalter, P., Chynoweth, J.G., and Jones, M (2000). Nonword repetition in school-age children with and without language impairment. *Journal of Speech, Language, and Hearing Research*, 43, 865-878

Woodward, L.J., Edgin, J.O., Thompson, D., & Inder, T.E. (2005). Object working memory deficits predicted by early brain injury and development in the preterm infants. *Brain*, 128(11), 2578-2587

World Health Organisation (1977). International classification of diseases. *Manual of the International Classification of Diseases, Injuries, and Causes of*

Death, 1, 764. Geneva: Author.

Appendices

APPENDIX A

Score Sheet for the Competing Language Processing Task (CLPT)

CLPT

Name _____
 Date of Birth _____
 Date of assessment _____

Group		Correct	Child's response		Word recall
A	Children can play.	Y	Y	N	_____
	Apples are black.	N	Y	N	_____
B	Ice is hot.	N	Y	N	_____
	Mice eat cheese.	Y	Y	N	_____
Level 1					
	1 Trees have leaves.	Y	Y	N	_____
	2 Trains can fly.	N	Y	N	_____
Level 2					
	1 Pumpkins are purple.	N	Y	N	_____
	Busses have wheels.	Y	Y	N	_____
	2 Boys can eat.	Y	Y	N	_____
	Bananas are blue.	N	Y	N	_____
Level 3					
	1 Carrots can dance.	N	Y	N	_____
	Water is dry.	N	Y	N	_____
	Sugar is sweet.	Y	Y	N	_____
	2 Buckets tell jokes.	N	Y	N	_____
	Horses have tails.	Y	Y	N	_____
	Milk is white.	Y	Y	N	_____
Level 4					
	1 Feathers can tickle.	Y	Y	N	_____
	Babies drive trucks.	N	Y	N	_____
	Birds can fly.	Y	Y	N	_____
	Cars build bridges.	N	Y	N	_____
	2 Snails have shells.	Y	Y	N	_____
	Chairs eat cake.	N	Y	N	_____
	Giants are small.	N	Y	N	_____
	Balloons can float.	Y	Y	N	_____

	Level 5			
1 Shoes have ears.	N	Y	N	_____
Fire burns paper.	Y	Y	N	_____
Robins eat worms.	Y	Y	N	_____
Cars can race.	Y	Y	N	_____
Hotdogs can bark.	N	Y	N	_____
2 Horses have feet.	Y	Y	N	_____
Dishes can whistle.	N	Y	N	_____
Fish pull wagons.	N	Y	N	_____
Roses have thorns.	Y	Y	N	_____
Cats can talk.	N	Y	N	_____
	Level 6			
1 Apples are square.	N	Y	N	_____
Rabbits read books.	N	Y	N	_____
Houses can jump.	N	Y	N	_____
Pencils eat candy.	N	Y	N	_____
Airplanes can fly.	Y	Y	N	_____
Balls are round.	Y	Y	N	_____
2 Fish can swim.	Y	Y	N	_____
Clouds wear slippers.	N	Y	N	_____
Sheep eat lions.	N	Y	N	_____
People have eyes.	Y	Y	N	_____
Dogs can run.	Y	Y	N	_____
Lemons are yellow.	Y	Y	N	_____

APPENDIX B

Score Sheet and Picture for the Money Tree Story

June:	Why is Miss McGillicuddy looking out of her window?	
July:	Show me the gift from the birds.	
August:	What did she tug?	
September:	What has grown so large? Why is she staring at the tree?	
October:	What are the leaves on the tree?	
November:	Why do the parents want to see the tree?	
December:	Show me the town officials. What do they want to do?	
January:	What do the strangers have in their bags and baskets?	
February:	Does Miss McGillicuddy want to pick the leaves from the tree herself?	
March:	Why is Miss McGillicuddy relieved?	
April:	Why are the strangers scratching at the snow under the tree?	
May:	Why do Miss McGillicuddy and the boys cut down the tree?	
June:	Why does Miss McGillicuddy smile to herself.	

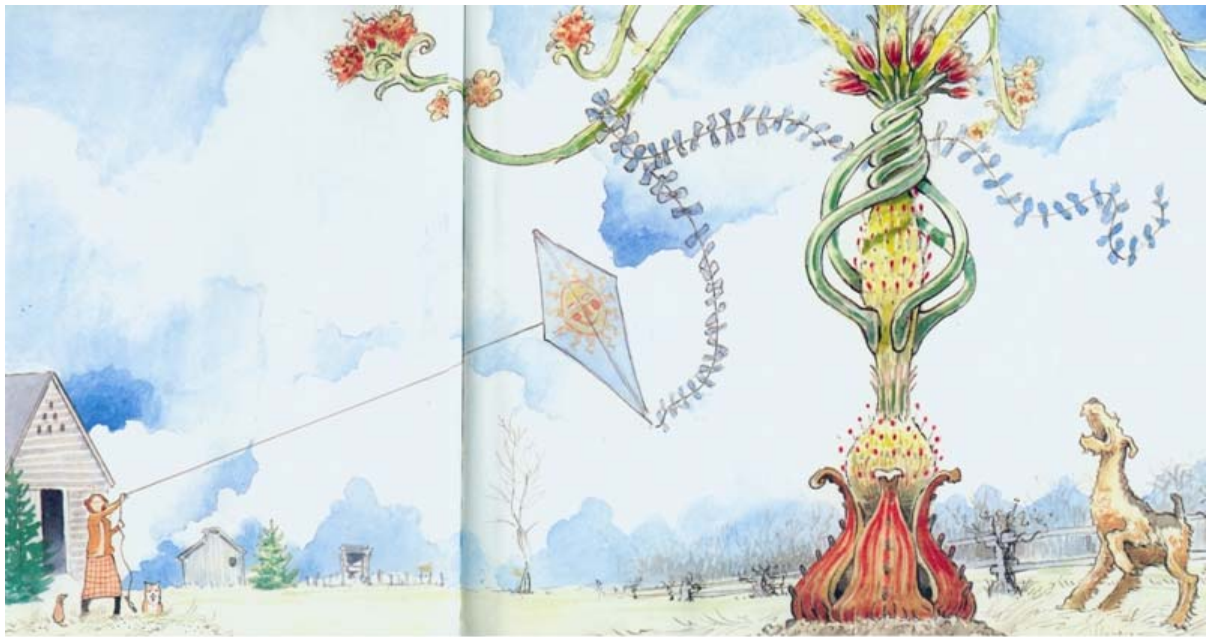
Child:

Date of Test::

Date of Birth:

Age at Test:

An illustration from the book, the August page.



APPENDIX C

Examples of Absurd Card Picture



APPENDIX D

List of Absurd Cards Pictures

1. Boy in bed lying feet to the pillow
2. A duck walking in gumboots
3. Man in suit with bucket on his head
4. A woman with an umbrella with no handle
5. Girl writing with a banana pen
6. Traffic lights that are blue pink & yellow (top-bottom)
7. Girl eating dinner from a half plate
8. A boy diving into flowers
9. A horse walking up the indoor stairs
10. Bath taps at both ends of the bath
11. A boy in bed in a soccer goal
12. A woman wearing flippers for shoes
13. Man in a car that is full of water & fish
14. A woman wearing her glasses upside down
15. Doors and windows on wrong places in 2 story house
16. A woman sunbathing in the snow
17. Clothes drying inside the oven
18. A woman holding a spade upside down in the garden
19. A horse with a bike seat for a saddle
20. A woman using a broom for a hairbrush
21. A bike with square wheels
22. A bike with no pedals
23. A girl holding a kite with a break in the string part way up to the kite

24. A swan rowing a boat
25. A fish swimming upside down
26. A woman walking with her feet back to front
27. A man watching an upside down TV
28. A clock with jumbled numbers
29. A giraffe with horns
30. A man reading a book with dark shining from his lamp
31. A plane with bird wings
32. A clock with four hands

APPENDIX E

Two examples of transcripts given on the measure of the Absurd Cards

The first child was born at 27 weeks gestation, but weighed only 535 grams, this child has a language age of six years eight months, the second child was born at 23 weeks gestation and weighed 710 grams and has a language age of seven years five months.

1) Absurd Cards

\$ Child, Examiner

+ Name: XXXX

+ Gender: M

+ DOB: 19/02/1998

+ DOE: 13/08/2005

+ CA: 7; 6

+ Context: Absurd Cards

- 0:00

C Blah, blah, blah, blah, blah, blah, blah, blah...

E Okay, these are absurd cards, so you just have to tell me what's wrong with them.

C Okay.

E Don't talk into it like that because it will be so loud when I go to hear it back. All I'll here is Jamie going... whhh! Too loud for me!

E Jamie, what's wrong with that one.

C He's sleeping the wrong way.

E He is. How should he be sleeping?

C The other way.

E Where should his head be?

E Mmm.

E What's the matter with that one?

C The duck's...The duck doesn't wear boots.

E You're right. Have you not seen a duck wear boots?

C No.

E [laughter]

E What's the matter with that one?

C He's not wearing a hat; he's wearing a bucket.

E He is. Do you think that might be a bit uncomfortable?

C No.

E Might be a bit weird eh?

C Yeh.

E Okay, that one; can you tell me?

C Yep...The, um, thing is the wrong way.

E What thing?

[no response]

E What is that?

C Um, a hair tie.
E Yeah. Do you think there might be something else that's wrong there?
C Yeh.
E What else?
C Ahh.
E Can you see anything else?
C No.
E No. What about how that umbrella's being held up?
C It, um...It has...It doesn't have any stick.
E It doesn't have a stick does it?
C No.
E ...silly old thing.
C Mmm.
E Okay, what's the matter with that one?
C He's writing with the banana. [laughter]
E [laughter] I...
C Funny!
E ...don't think she'd get very far with a banana.
C No she can't.
E What's the matter with that one?
C That one's blue; that one has to be up there, and that one has to be up there.
E Is...so...do you usually see blue ones on there?
C No!
E So, what's the matter with it?
C Ah...the green has to be down there.
E The green does; yeah. What else?
C Um...
E Do you usually see pink on there?
C No.
E What colour is it?
C Red.
E Where does that go?
E And what's in the middle...?
E It's not yellow, is it? What colour is it?
C Ah...yellowy, orangy colour.
E Yeah. It's orange. It's called amber.
C Amber.
E Okay. What's the matter with that one?
C Whhh! She's only got half a plate.
E [laughter]
C ...and tea.
E Wonder what happened to the rest of her plate.
C I don't know.
E No! [laughter]
E What about that one?
C He's walking the wrong way up. [laughter]
E He's walking the wrong way up?
C Yep.
E What else?
C Um. He's picking up the flowers the wrong way up.

E It's an interesting one.
M [background voice, presume questioning]
E Actually, no. A lot of them don't.
C Mmmm.
M Not surprised.
E No.
C Mmmm.
E What is the matter with that one?
C Um. The horse is climbing upstairs, but the person has...too.
E Where would the horse be going, do you think?
C Aah, I don't know.
E Should be inside?
C No! Outside!
E Ooh, he shouldn't be!
E What's the matter with that one?
C The taps...there's four taps. One on that side and one on that side.
E Has your bath not got four taps?
C No.
E [laughter] Neither has mine.
E What's the matter with that one?
C He's sleeping in the...in a...in a goal.
E He is...
C ...a soccer goal.
E Do you not usually sleep in a soccer goal? [laughter]
C No, we don't.
E You don't. I think it might be a bit chilly at this time of year, don't you?
E What's the matter with that one?
C She's wearing...that.
E What are they?
C Flippers.
E Well done! You're getting fantastic at this game.
E Uh-oh! What's the matter with that one?
C He's got fish. [laughter]
E Where are they?
C S'posed to be in the water.
E They are in the water. I can see blue water in there.
C Mm. Funny.
E Do you not have those in your car?
C Nooo! I don't have them on Mum's...Mum's or Dad's car.
E Do you think there might be a bit of a problem trying to breathe with all that water there?
C ...yep!
E Mm, I do too. You'd have to wear a breathing mask in the car.
C Yeah.
E What's the matter with that one?
C Her glasses are the wrong way up.
E They sure are. They might fall off I think.
C Yep!
E Yeah.

E What's the matter with that one?

C One door's there, and one door's up there; and the window's s'posed to be up there.

E It is!

C [laughter]

E It is.

C Funny as!

E You'd be surprised how many don't get that.

M Oh really?

E Mm!

E What about that one?

C She's sleeping in the snow.

E So what's the matter with that?

C Um...she's having a beach time in the snow.

E Where should she be?

C At the beach.

E At the beach! I think you're right. Think it might be a bit cold?

C Yeh!

E Mmm. She's...

C Me too.

E ...a bit silly.

C Silly as.

E What about that one?

C The clothes are hanging in the oven.

E Don't you hang yours in the oven?

C Nope!

E Where do you hang yours?

C Um. On the washing line.

E On the washing line. I think that's probably the best place, especially on a day like this!

E What about that one?

C He's hoovering with a spade.

E Is she?

C Yeah!

E What's the matter with the spade?

C It's...ah...s'posed to be... [unknown]...chemcleaner.

E [laughter] Is there something else wrong with the way it is?

C Yes.

E What?

C It...d...it's the wrong way up.

E It is. She's silly. She'd get...

C Silly.

E ...dirt all over her wouldn't she?

C Yeah.

E What about that one?

C Um, the horse has a bike seat on it.

E What does he normally have? What should he have?

C A person.

E Or a saddle, eh?

C Saddle.

E Yeah, that's what they're called.
 E Oh, my goodness!
 C What.
 E What's the matter with that?
 C She's brushing her hair with a brush.
 E What sort of brush?
 C Broom.
 E Yuuk!
 C Yuk! Eh?
 E That would be really gross.
 C Yep, gross!
 E Oh my goodness! What's wrong with that?
 C Ah...looks, um, the things are square shape.
 E How fast do you think you'd be able to go on a bike that had...
 C I don't...
 E ...those?
 C You can't.
 E You can't! You wouldn't be able to ride on that.
 C Nope!
 E [laughter]
 E Mmm. Now, can you find out what's wrong with that one?
 C Mmmm.
 E Yes? What?
 C Um, the...it's su...posed to be...'nother shape.
 E Mmm. What is missing off that?
 C Cords.
 E Cords. Where?
 C [tapping sound]
 E Oh. On there. What about...?
 C It doesn't...have it.
 E No, it doesn't. It doesn't have any pedals! So you'd only be able to go downhill on that one.
 M I didn't even notice that myself! [laughter]
 E It's tricky!
 M I didn't actually notice...
 E Some of these are so...
 M ...I didn't know what was wrong with it!
 E Some of them are so subtle.
 M Mmm.
 E What about that one?
 C Um, there's no string in there.
 E Do you think that might fly away?
 C Yep!
 E I do too. That's silly.
 C Silly!
 E Wah-ho! What about that one?
 C The duck is rowing a boat.
 E Have you ever seen that before?
 C No!
 E Me either!

C [laughter]
 E Now that's not subtle! [laughter]
 C [laughter]
 E Uh-oh!
 C The fish is upside down.
 E [laughter] That was too easy-peasy for you, wasn't it?
 C [laughter] He's wa...sh...her...she's um, walking backwards. I mean, she's s'posed to walk that way; not that way.
 E She is! Do you think that'll be a little bit uncomfortable?
 C Yeh. I do too.
 M That was good spotting actually, James...quite tricky.
 E It was; and it was...it was fast.
 C The TV's upside down.
 E This boy of yours!
 M Mmm.
 E He's pretty good at this stuff!
 E Mmm.
 C The um...big hand's s'posed to be down here, and the little hand's s'posed to be down here.
 E Mm. Have another look and see if you can spot anything else that's not right.
 C Mmm...can't see anything else.
 M Sure?
 C Um, the things are the wrong way! [laughter]
 E [laughter] What's wrong?
 C Um, then one and two are right there; but four, three, five, eight, seven, nine are wrong.
 E [laughter] They were tricking you. If you don't look...
 C Ooo...!
 E ...you don't see those.
 C ...I know what it is! They just have horns.
 E He shouldn't have horns, should he? You're right!
 C Easy! They're so easy.
 E They're so easy!
 C He's reading a...reading a book in the light.
 E What's the matter with the light?
 C Um...it's, he can't see the words.
 E It's a bit dark, isn't it?
 C Yeh.
 E Yeah!
 C Wow!
 E What's wrong with that one?
 C The aeroplane has wings.
 E Aeroplanes have wings though, don't they?
 C Nah! Yeh!
 E But?
 C But they have bird's wings.
 E [laughter] That one has bird's wings!
 C Last one!
 E That's a tricky one!

M Good boy!
 E He's done well!
 C They have it four times.
 E Four...?
 C Um. Four hands.
 E That's the one! Well done!
 E So. Off!

2) Absurd Cards

\$ CHILD, EXAMINER, MOTHER

+ Name: XXXX

+ Gender: M

+ DOB: 26/07/1998

+ DOE: 10/09/2005

+ CA: 7; 2

+ Context: Absurd Cards

- 0:00

E Okay, this is the absurd cards. Okay XXX, what's the matter with that one?
 C It doesn't have...the man is the wong way wound.
 E He is. That would be a bit weird wouldn't it, sleeping like that. What's the matter with this one?
 C Boots.
 E Don't they usually have boots? I need you to remember to talk 'cause I need to listen to this later for you. Aw oh.
 C The bucket.
 M Explain the whole sentence darling.
 E Explain it to me.
 C He's wearing a bucket on his head.
 E He is. That would feel pretty weird don't you think? That one?
 C She has to be holding the pole.
 E Hmmm so what's the matter with it?
 C It...it looks like its floating above her head.
 M Yes.
 E It does doesn't it. What does it need?
 C A...a holding handle.
 E You're right. Good spotting. What wrong with that one?
 M [laugh]
 C The girl's writing with a banana.
 M [laugh]
 E [laugh] I don't know, I haven't seen a banana that writes. What about you?
 M I've seen a banana pen.
 E Have you? Your mum has seen a banana pen. Right...
 C That needs to be owange, and wed and gween.
 E Which order to do know?
 C It needs to be wooaw, and that wooaaw.

M So what goes at the top? What's meant to go at the top?

C This is meant to go up the top, this is meant to go down the bottom and this is meant to go in the middle.

E Mmmm.

C She has to have half of her plate.

E I wonder where the other half's gone? [pause] Do you have half plates in your house?

C No.

E No. You wouldn't get enough to eat would you? Look at that. What do you think's going on there?

C He's...

E Tell me about it?

C He's meant to be standing but he's hand standing.

E Hand-standing where?

C He's meant to be like this, but he's like this.

E Mmmmm. Okay...what is wrong with that one?

C [laugh] Horses aren't meant to walk up the stairs.

E They're not are they? Where should they be?

C On the gwass.

E Mmm outside, you're right. I'll just remove that from your toes. That one, what's the matter there?

C Aw the bar is, there's not meant to be two ends.

E What do you mean two ends?

C There's only meant to be one of those, not...

E What are those?

C Two. Handles...to put in water.

E Awww.

C Taps.

E That's what we were waiting for. Well done. It would be pretty weird wouldn't it to have two ends. Okay, what's the matter with that one?

C He's not meant to sleep in a basketball wing.

E Where should he be sleeping?

C In his bedroom.

E In his bedroom.

C In his house too.

E Yeah. Do you think it might to warm enough there?

C But I'd like to be like this in my house.

M Would you?

E [laugh]

C So no one could get me.

E Build a net in your bedroom?

C So no one could me as...

E Okay what the...

C But they could easily pop some dynamite in so I couldn't get out. And I could just be blown. [laugh]

E Okay tell me what's the matter with that one?

C Um...

E I'm not even gonna go there.

C You aren't meant to be weawing flippers.

E What should she be wearing?

C Sues.
 E Yes I think you're quite right. I think that would be very uncomfortable. All righty look at this, what's wrong with that?
 C You aren't meant to be in the water and in your car when there's water and fish.
 E Why not?
 C Because it's... [unintelligible]
 E Because it's?
 C Unsafe.
 E I think unsafe is a good, good reason there. Do you think the fish might get in the way?
 C Mmm, and make the car slip to history!
 E Do you think the driver could breathe in that water?
 C No.
 E No. What's the matter with that?
 C Um. You aren't meant to wear your glasses upside down.
 E [laugh]
 C It's meant to be like this instead...
 E Why not?
 C Of that.
 E What happens if you wear your glasses upside down?
 C Ahhh...
 E Oh my goodness. [laugh]
 C Ahhh I can't see much.
 M And they?
 C And they could easily fall off.
 E You think, oah, yip that's what will happen every time. [laugh] Thanks Fergus for that one.
 C Can they fall; no...
 E No...
 C No.
 E Not like that.
 C Oooow.
 E Okay, find out what's wrong with that one.
 C You aren't meant to have a door right up here your meant to have a door right down there. And have...
 E That's good spotting.
 C A...no.
 E How would they get out of that one?
 C By just jumping to their deaths. [laugh]
 M [laugh]
 E Yes they could hurt themselves. I think they might break their legs if they fell out of that one. Okay here's a cool one.
 C They would, they might have to saw their whole house down to get in.
 M Or build a deck.
 E Build a deck I think. What's wrong with that one Fergus?
 C They aren't meant to be lying in the snow.
 E Where are they meant to be lying?
 C On a beach.
 E I think you're quite right. Do you think she's feeling cold?

C Ah no.
E Silly girl. What about that one?
M Some people do that though.
C They are, why? To get their clothes warm.
E Mmmmm.
C But it could be burn.
E Yeah that is too weird. What's the matter?
C That you aren't meant to hang coat hangers in the stove.
E Cause what would happen?
C They could catch on fire.
E You're right.
C Brrrrrrrrrrrrrr.
E Thank you for that. Here we go, what's wrong with that one?
C They aren't how you'd hold your spade upside down.
E What would happen?
C You can't dig in the muck on your face.
E Alright. And those, that part of the shovel is sometimes quite sharp so you might cut yourself too.
C Cut all your hands here and they'll cut there.
E Mmmm that's very silly, very silly. Okay that ones quite weird, what's wrong with that?
C You...aren't...meant...to...have...a...bicycle seat on a horse.
E What should you have?
C You could have a bike.
E What should you have on a horse? Do you know what it is?
C A saddle...
E Mmm you're right.
C Instead. Hey Alec, look at this...Hey Alec, look.
E What about that one?
C Look. You aren't meant to brush the dirt in your face.
E So what's she using to brush?
C Her hair.
E Mmmm.
C She's meant to brush her hair with a comb not a broom.
E Oh I think that's good idea. [pause] Okay nearly there. Over half way anyway. What's wrong with that?
C They aren't meant to have square wheels.
M Because?
C Because they could get flattened.
M Because?
C Because it would just go boom, boom, boom and you wouldn't get there fast enough.
E It wouldn't go very fast at all would it?
C Boom, boom.
M It would go.
C It would go boom, and it would go boom, boom...
M Yeah, that's right. Exactly.
C Boom...
E Yeah, it would.
C Boom...

M Yeah.
 C Boom. But not turning round.
 E It would be very lumpy wouldn't it? What about that one?
 C I don't see anything.
 E Aahhhh.
 C They aren't, you have to have a... the holding bus, no, you are you have to have the controls. They don't have the contwols.
 E Mmm, what else? Have a really good look and think about it.
 M Awww, I can see.
 C They need a little trigger.
 M The gear stick but also what else would you need?
 E Mmm what else is missing? Something might be missing off that.
 C Handles.
 M You image riding on it and putting your body on it.
 C You need to have peddles.
 E Ahah, you do. Well done. So many don't get that one. What's wrong with that one?
 C You have, you could easily get blown away.
 E What's missing?
 C The other bit of the stwing.
 E So what will happen to your kite?
 C It'll blow away and never be found.
 E You're right. End up in a big tree I think.
 M Fergus?
 E Fergus?
 C Aw.
 E What's wrong with that one?
 C A swan can't be driving a boat?
 E Why not?
 C Because it's under the law and doesn't know how to paddle. [pause] And...
 E And? [pause]
 C It needs a power boat.
 E Do they need boats to, to swim on top of the water?
 C Mmhh.
 M Do they?
 E Do they? Have you seen them in a boat?
 C Yeah.
 M Awwh.
 E I think you might be tricking me.
 M Fergus, you tell the truth; don't trick.
 C Okay.
 M No ones trying to trick you, you just answer.
 C Okay no.
 E Good boy.
 C Woah, it's meant to be this way but it's... woah, that way.
 E Can you explain it to me?
 C Yep because it's upside down...
 E Aww.
 C And the bubbles are going down...
 E You're right.

C Instead of the bubbles going up.
M Yes.
E Yeah.
M That's a tricky one actually.
E Yes that is a tricky one.
M Not just the upside down but the bubbles.
E Good spotting.
E Mmmm...
M [laugh]
E What is up with that one?
C She's walking forwards, but her head is backwards, and her arms.
E Pretty weird aye?
C Turning pwussing? Picture.
E It just wouldn't go very well would it?
C Yeah.
E She might fall over, I think.
C [pause] The TV's upside down.
E You're so right.
C And hey look, he's upside down and the TV's...
E Now he's upside down, you're right. Well done Fergus good spotting.
Now this is a tricky one so I need you to have a really good look.
C It's meant, it's at twelve but it's meant to be at the six. Twelve and six and...
M Have a good look darling.
C And the, and I'm just getting to the point of that, and it's lost its hand.
E Mm is that everything? Can you not spot anything else?
C One, two, three, four, five, six, seven, eight, nine... no it's meant to have the
ten there and the eleven there.
E Is that all?
C Yep, that's the one thing! Nine eleven ten twelve one two, three, four... I
already answered!
E Are you happy with your answer?
C Yep.
E That one?
C That's the sick put on it.
E What's wrong with that?
C It's not meant to have antlers.
E No you're right, its not.
C Its, its meant to be light but its grey. [noises]
E [to M] Most, I've had one or two that surprise me.
C It's not meant to have wings.
E Well, planes do have wings.
C Not... no.
M They do.
C Yeah, but not like wings like that.
E Who do they belong to?
C An angel.
E An angel? Are you an angel?
C No.
E No.
C It's not meant to have four hands.

E Well done.

APPENDIX F

Transition to School Reports for two of the Preterm Group.

The following two reports highlight the abilities and variations of the children in the preterm group and the types of interventions received at preschool.

The first child is achieving at an average level in school, while The Ministry of Education under the Ongoing and Reviewable Resources Schemes (ORRS) funds the second child.

TRANSITION TO SCHOOL REPORT



Monica Hoefler
DOB: 05 May 1996

THIS REPORT INCLUDES:

1. Introduction
 - Therapies [redacted] has received
 - History
 - Strengths and Developmental Needs
2. Early Intervention Teachers Report
 - Strategies for learning
 - Fine Motor Skills
 - Pre-academic Skills
3. Speech Language Report
 - Receptive Language
 - Expressive Language
 - Oral-motor Skills
 - Appendix: Speech Language Supplement
4. Occupational Therapy Report
 - Physical Skills
 - Self-help Skills
5. Computer Assisted Learning
6. Music Specialist Report
7. Education Support Worker Report
 - Learning and Development in the Early Childhood Centre



THE CHAMPION CENTRE

Tamariki Toiora

REPORT ON:

[REDACTED]

DOB: [REDACTED]

Introduction

[REDACTED] was born prematurely at 27 weeks gestation and was therefore referred by Dr [REDACTED] to our programme on 11.9.98. She began weekly attendance 13.10.98, when she was aged 2 months (corrected from the expected date of birth).

Briefly the programme's aims are:

- a) To advance developmentally delayed children towards their individual potential, allowing them to gain as much independence as possible and to prepare them for inclusion in their local pre-school and primary school
- b) To strengthen and skill the families of developmentally delayed children who participate in the development programme of their children. To strengthen the relationships within the family and to develop their skills and confidence to advocate for their children. This, being a family/whanau based programme, is carried out by the parents/caregivers in their home and community.

In attending the Champion Centre [REDACTED] has received Paediatric Physiotherapy, Occupational Therapy, Speech Language Therapy and Early Intervention Teaching (cognition and fine motor skills). During 2002 and until school entry she has also received computer assisted learning and individual as well as group music.

On entry to our programme, [REDACTED] was seen weekly until 2.3.99 (aged 7 months corrected) when she was referred to our Premature Baby monitoring service. Under this programme she was assessed at 12 months, 15 months, 18 months, 2 years, 30 months and 36 months (all corrected ages). At the 3 years old assessment some areas of development were of concern. She was therefore seen again at 3 years 2 months.

Concerns at this stage were:

- independent learning strategies
- fine motor skills (drawing and cutting)
- problem solving
- expressive language
- balance reactions
- toileting

Since 17.4.02, when [REDACTED] was aged 4 years 1 month (not corrected) she has been seen fortnightly. At each session, [REDACTED] has one-on-one therapy time with each therapist. During this time parent and therapist work in partnership, on appropriate goals which are evaluated each week. The therapists work in an interdisciplinary way so that children learn in a meaningful and integrated manner, and so that skills are not acquired in isolation. The same goals have been incorporated into [REDACTED] everyday life, including the Early Childhood Centre. An Education Support Worker, who is part of our team, has been working with [REDACTED] one morning a week at [REDACTED] Kindergarten, since October 2002.

Administered by: Christchurch Early Intervention Trust, C/- Burwood Hospital, Private Bag 4708, Christchurch, New Zealand
Ph: (03) 383-6867, Fax: (03) 383-6866, Email: office@championcentre.org.nz
Patron: Prof. Alan M. Clarke CMG, MB, ChM, FRACS. Founder: Dr Patricia Champion MBE, PhD

History and Impact

Prematurity, low birth weight, fragility of the early weeks and the significant medical interventions which are necessary for sustaining such a young life, mean that [REDACTED], at an early age, has already been through an enormous amount. The trauma of the early weeks cannot but have had an effect on [REDACTED] development, as well as influencing the relationships and early interactions in the family.

Dealing with information from one's senses is an ongoing minute by minute task. When one's system for assimilating and responding to this information is immature then living becomes a tiring experience. When the sensory information becomes more expected and familiar, then a person becomes more confident in the environment. It has taken these early years for [REDACTED] to develop the process of integrating information and responding fluently.

[REDACTED] may be quiet and watchful when in unfamiliar situations. She may be a little reluctant to attempt tasks she perceives as challenging, yet clearly pleased with herself when she knows she has succeeded.

Some developmental fine tuning is still necessary for [REDACTED] and this affects her ability with fine motor skills and her ability to trust herself in challenging situations. She also shows mild delay in language.

[REDACTED] is a responsive, engaging, motivated and joyful child whose self-esteem and confidence is growing daily. Her attention span is very good. [REDACTED] is sometimes serious, always cooperative, happy, enthusiastic, caring and sensitive.

Her progress is a credit to her parents. They too had to cope with the trauma of the early weeks after [REDACTED]'s birth and learn the parenting role without the usual biological and psychological preparation. We have watched the development of a wonderful relationship which has been magical to see and of great influence to [REDACTED]'s development.

We have valued [REDACTED]'s honesty, understanding, perceptiveness and knowledge which she has brought to our working partnership.

We wish the whole family the very best for the future.

[REDACTED]

D.O.B: [REDACTED]

Report Date: June 2003

[REDACTED] is a delightful child who is a pleasure to teach. She knows her abilities and takes pleasure in her achievements. She is also very aware when an activity is likely to be challenging and prefers to avoid this situation. However, she shows increasing confidence with unfamiliar or challenging activities, especially when provided with some verbal encouragement. She will ask for help and when she does this she means and expects just enough support so that she can then carry on independently.

[REDACTED] is always cooperative and friendly. She responds to structured learning situations by waiting, looking, listening and focussing, all of which are necessary pre-requisites to learning. She is able to follow suggestions provided to extend activities. She concentrates well, coping with distractions and returning to the task.

At 4 years of age there were some concerns and delays in fine motor and cognitive development. These were:

- imitation as a learning strategy
- perception of 3D structures
- drawing skills
- scissor skills
- ability to answer questions.

At this stage her knowledge, ability to respond, learning strategies, and fine motor skills are age appropriate. However, because she was late developing some skills and because it took a considerable amount of time and repetition for her to become competent, it is valuable to be aware of these areas. She does not have the background of consolidation that would be expected at her age.

FINE MOTOR SKILLS

Fine motor skills include the development of finger, hand, wrist and arm movements, control of these movements and development of eye-hand coordination. These skills enable children to physically manipulate objects and tools to explore and interact with the environment. [REDACTED] is now very successful with fine motor movements, having developed more finger strength and coordination in recent months. She shows accurate eye-hand coordination and is right hand dominant.

She is able to:

- manipulate cards, counters and small objects
- thread small beads and large buttons
- do up and undo buttons (on table in front of her), zip, dome and hook
- unscrew and screw lids
- sharpen a pencil
- put a paper clip on paper
- join plastic chain links (Link'n'Learn)
- open spring clips
- imitate a 6 block structure (1" cube blocks)
- put little plastic pegs into small holed pegboard
- use scissors to cut following a curved line, and a square.

Drawing and Printing

[REDACTED] holds a pencil with dynamic tripod grasp mostly, although at times she reverts to a more immature grasp. [REDACTED] does not feel very confident about her drawing work and often needs encouragement to think how to start. She is then able to draw recognisable representational pictures.

She can also:

- draw a person with several features
- imitate i o c a H
- draw a line neatly along a 1 centimetre path, when the path is horizontal, vertical, diagonal and circular
- trace a dotted line in a variety of directions e.g. square and triangle
- print her name, approximately
- colour-in attempting to keep within a boundary.

works carefully with intense concentration when involved in drawing or printing.

PRE-ACADEMIC SKILLS

Pre-reading skills:

enjoys books and shows an increasing interest in words. She understands the beginning, direction and end of a story in a book.

has excellent visual discrimination skills as evidenced in matching games. She can match similar pictures, coloured patterns, black and white patterns, symbols, alphabet letters and words. To do this she uses memory, systematic visual scanning, checking and cognitive knowledge to find the same, picture, letter, word etc from a board of 9 or 15. She is able to find the word beginning with the same letter from a group of 20 randomly placed on a page.

Comprehension has been shown in a variety of tasks:

- match by association e.g. table and chair
- match 3 by association e.g. bee, flower, honey
- sort pictures according to category
- match tools to person who uses them (gardener, doctor, carpenter, baker)
- select objects or pictures according to concepts real/unreal, heavy/light, rough/smooth, empty/full, tall/short
- sequence 3 pictures in order to make a story. When the pictures are clear she may be able to sequence 4 pictures. is sensitive to the emotional inferences of pictures (e.g. broken vase, hurt child) and this may cause her to become quiet and less able to complete the task.
- Follow the sequence of a list, starting at the top and working downwards.

engages in pretend play and is happy to incorporate others.

cannot yet respond correctly to a "theory of mind" test. For example, when presented with an obvious lollie container and discovers that there is a bead inside, she assumes other people will know there is a bead inside too.

Puzzles

Success with puzzles depends on an integration of perceptual and cognitive skills as well as fine motor control and manipulation. tackles puzzles with perseverance showing an ability to use her knowledge in combination with fine motor control. She is able to match the part shape of a piece with the part shape of the hole and visually scan for this shape. She can use knowledge of logical positioning to help e.g. wheels at bottom of car picture. She uses memory of where pieces go. She is able to remember strategies she has already used and be systematic about her problem solving. Thus she is able to complete picture puzzles of 10-15 pieces and a mosaic puzzle of 12 pieces.

Colours

can match, select when given name, and spontaneously name all common colours and less common ones such as black, white, pink, grey, purple.

Mathematics

has a solid base of mathematical understanding on which to build further learning. The following summarises this base.

<i>Classifying:</i>	<ul style="list-style-type: none"> - sort objects, colours, shapes - sort according to 1 feature e.g. has a hole, rolls - select by negation e.g. not red, not round
<i>Comparison:</i>	<ul style="list-style-type: none"> - sort big/little, long/short - select object or picture that is not the same or different - nest five containers, problem solving according to size
<i>Ordering:</i>	<ul style="list-style-type: none"> - seriate five pictures in order of size or tallness - seriate four pictures add another one into this seriation - select first, second, middle and last
<i>Patterns:</i>	<ul style="list-style-type: none"> - continue a three object linear pattern - continue a three colour linear pattern - continue a three line linear pattern e.g. 0. 01. 0 - reproduce a linear pattern involving plastic teddies of three different sizes and colours, shown on a card - make a three colour chain link pattern on instruction
<i>Shape:</i>	<ul style="list-style-type: none"> - match roofs, doors and chimneys to houses of same pattern (6) - match, select and name circle, square, triangle and rectangle (oblong) - imitate a five shape attribute block pattern - match cards with two overlapping shapes on them (board of 9) - select objects which have a round part or square part - decide whether shapes are "more like" a circle or "more like" a square (given semi-circle, oval, rectangle, triangle)
<i>Number:</i>	<ul style="list-style-type: none"> - make a square or triangle with cuisenaire rods - rote count to twelve consistently correctly - count with one to one correspondence to twelve - concept five i.e. can name this group without counting - order numerals 1-10 and match objects or picture cards to these - match sets 1-5 - select which group or "more" or "less", 1-10 - add "one more" and "two more" to groups - give half from group of 6
<i>Tactile:</i>	<ul style="list-style-type: none"> - identify familiar objects and shapes by touch only

Memory

██████ demonstrates a good working memory. For example, when doing a puzzle she remembers places where she has already tried pieces. She can also remember the rules to simple games and waiting for her turn. Within any activity she shows good concentration and ability to persevere. Specific memory tasks reveal she can:

- reproduce a five shape attribute block pattern seen constructed and then covered
- recall four pictures placed in front of her and named, then covered.

When asked questions involving long term memory she may need prompts to help her, but this is not necessarily a memory issue.

I anticipate that ██████ will make steady progress with academic learning. She has particular abilities with maths and she is enthusiastic about maths activities. She is able to ask for help and she is able to check whether she is on task by looking at others in the group. ██████ is well motivated to learn and she will enjoy school.



Early Intervention Teacher

D.O.B: [REDACTED]

Report Date: June 2003

[REDACTED] was born prematurely at 27 weeks, weighing 1010 grams. She was ventilated for 24 hours, then received supplementary oxygen for approx 7 weeks. Breastfeeding was introduced at 34 weeks, and established at 36 weeks, with [REDACTED] retaining good health other than mild reflux.

[REDACTED] has received Physiotherapy and Occupational Therapy services since entering this service in, October 1998. Service provision varied from weekly sessions through the first year, to regular monitoring, then via clinic attendance again on a fortnightly basis from June 2002, as gaps in [REDACTED]'s development became evident. The focus in the past several months was to develop and extend balance, stability and upper limb endurance skills, for function and play. These were presented in short game sequences of 4-5 steps, involving turn taking skills. A wide range of activities were used, including suspended equipment, balance beams, bat/ball games, and an outdoor playground structure. Activities were discussed with [REDACTED], with pictures drawn (mapped out) on a small whiteboard, to establish the plan and assist development of attention, memory and sequencing skills. Demonstration and verbal cueing were also used to clarify understanding of the game concept.

CURRENT STATUS

[REDACTED] presents as a slim, 'finely built' child whose height and weight is now above the 3rd percentile. Historically [REDACTED] has presented with low tone in the trunk, impacting on balance skills and upper limb stability and strength. Movement patterns often appear stiff/awkward until a muscle 'warm-up' has occurred, requiring several repetitions of an activity, for smooth flowing actions to be observed. This type of movement presentation is not uncommon in children who were born prematurely, and is generally seen to resolve as the child's neurological system matures. Musical support through rhythm and song clearly assists to relax and establish a flow of movement for [REDACTED] and enhances her enjoyment and success. Additionally increased self-confidence has enabled [REDACTED] to extend her balance skills and achieve adequate upper body strength, e.g. to suspend herself from monkey bars, alongside her peers.

Gait

[REDACTED] walks and runs with a slightly stiff legged, rigid gait, until 'warmed up' through repetitive muscle movement e.g. jumping on mini-tramp or stretches while standing on a wobble board. [REDACTED] is able to establish a gallop, however has difficulty co-ordinating a skipping action.

Balance/jumping/hopping

[REDACTED] displays increased confidence and competence in balance, jumping and hopping skills. She is able to follow verbal instructions, however responds more readily to demonstrated activities and would benefit from observation of other children when presented with a new game concept. [REDACTED] displays independent skills in the following areas:-

- Walks, alternating steps, along a line and wide beam,
- Walks heel to toe along a 5 metre line
- Steps on/off and stands on wobble/rocker board independently, weight shifting forwards/backwards and sideways
- Stands on right foot 3 seconds, left foot 8 seconds
- Jumps up and down at ground level and on mini-tramp in a continuous sequence, 10x
- Jumps over low objects e.g. bar, set at 220 mm height
- Jumps forwards in a standing jump .85 m; jumps backwards and sideways 5 x in sequence, over lines/hoops
- Jumps off low heights and recovers balance
- Hops independently on right/left feet
- [REDACTED] has been introduced to jump rope

Ball Skills:

██████ has been introduced to a range of ball games, with a focus on eye-hand co-ordination, hand position on the bat, and a side-on body position. Games have included junior versions of T-Ball, cricket, golf, hockey and tennis with suspended balloon and ball. ██████ is able to:-

- Strike ball with force, from a stationary position e.g. T-ball stand
- Sustain eye gaze to track ball
- Respond with accurate timing to strike a suspended balloon/ball, with consecutive hits, 6-7x
- Kick with right and left foot 6 m in distance, favouring left foot
- Throw over/under arm to target 1-2m distance, right handed
- Throw, aim and catch medium sized balls from 1.5 m distance
- Bounce and re-catch a medium ball, 4 times in sequence and within a small group setting

Upper Body skills

- Grasp, launch and suspend body weight from a low trapeze/bar for 20 seconds, and land upright
- Grasp, launch and suspend body weight from a suspended knotted rope, for 5-8 seconds, and land upright
- Grasp, swing, flex legs and hook knees over bar assisted, remaining suspended for 20 seconds
- Grasp bar, release one hand, reach next bar assisted and swing alternating hands across rungs, on monkey bars

Other e.g. swings/trike riding

- Ride a trike/scooter or bicycle with training wheels
- Self propel a swing
- Climb vertical ladders to platform
- Walk/run across a clatter bridge independently

SENSORY PROCESSING

Currently ██████ presents with more integrated sensory processing, when in the past she had been hesitant and reluctant to engage in various sensory motor activities. This has been demonstrated by increased confidence in a variety of vestibular, (movement) based activities, exploring a greater range of messy tactile play, e.g. paints, slime. Music is also noted to act in a supporting role in developing smooth movement flow and reducing muscle rigidity. Oral and visual processing appears within age appropriate range.

SELF HELP SKILLS

Toileting

██████ is independent in certain aspects of toileting, i.e. managing and adjusting clothing and hand washing and drying. She requires some cueing to go to the toilet when engaged in play and is currently transitioning from wearing pull-ups at night. She is learning how to tear toilet paper off a roll and to wipe herself successfully following a bowel motion. Illness eg conjunctivitis can readily tip ██████'s metabolic system, resulting in soiling episodes for the duration of the infection.

Dressing

██████ is independent in dressing other than for tying shoelaces, which she attempts.

Grooming

██████ is able to brush her teeth when cued by her mother, and is assisted to dry herself, following bathing and swimming.

Eating

██████ enjoys a range of food and eats competently. She is able to open paper food wrappers, however may require assistance with small container lids.

- Delightful, engaging, personality
- Enthusiastic and willing to learn new activities, when supported
- Persistent to achieve a goal she has set her mind on
- Likes to help and blossoms when praised

- Will require muscle warm-up for PE/fitness e.g. jumping up and down, to reduce rigidity of movement patterns and establish flow of movement
- May have some difficulty co-ordinating more complex bilateral and sequencing skills such as jump rope and star jumps

██████████ is an engaging five-year-old child who displays enthusiasm and competence for many age appropriate sensory motor activities. With the consistent support of her parents she has grown and developed skills in a positive, confident manner, despite her premature arrival. ██████████ has been a delight to work and play with and I wish her and her family well, with many happy school days ahead.

██████████ may require Occupational Therapy review at approximately 6-7 years of age, should she experience difficulty with more challenging sensory motor or fine motor activities at school. Any concerns should be raised via GP visits or Paediatric reviews.

Paediatric Occupational Therapist

[REDACTED]

D.O.B: [REDACTED]

Report Date: June 2003

Background

Since entering our programme of early intervention at the Champion Centre, [REDACTED] and her mother have established a close working partnership with Champion Centre staff.

In speech and language therapy, [REDACTED] has shared many insights regarding [REDACTED]'s early feeding development and the acquisition of her communication skills. Together, we have been able to identify areas of concern, explore ways of reducing these concerns and prioritise our goals in an integrative, developmental approach. We have worked from the premise that parents/whanau are the child's most important partners in any programme of intervention. The formation of our working partnership has, at all times, been seen as essential in helping [REDACTED] achieve her fullest communicative potential.

I have enjoyed working with [REDACTED] and valued her willingness to share her knowledge of [REDACTED] with us. [REDACTED] is a delightful, friendly girl who has a natural zest for life and a growing awareness of her own achievements.

In order to plan an effective and appropriate communication programme for [REDACTED] we needed to review what communication comprises, how language develops, why it develops and the impact that any perceived difficulties might have on this development. This process enabled us to find an appropriate entry point for intervention.

Demands for appropriate participation in social settings intensify as children grow and mature. As [REDACTED]'s journey towards the commencement of her formal education progressed, aspects of her programme were adjusted to accommodate her changing needs.

A Brief History

[REDACTED] was born prematurely, at only 27 weeks' gestation and weighing 1010 grams (2.2 lbs). She was placed in the newborn intensive care unit (NICU) and ventilated for 24 hours, before being transferred to CPAP (continuous positive airway pressure) for 10 days. Supplementary oxygen continued to be provided for 7 weeks at which time [REDACTED] 'graduated' to the intermediate nursery. [REDACTED] had several apnoea attacks in the NICU, but none following her welcome into the family home when she was aged 10 weeks.

[REDACTED]'s early arrival was a great surprise to her parents, on two counts. Firstly, [REDACTED] was not aware of her pregnancy until the 22nd week. An ultrasound scan confirmed her pregnancy at 24 weeks and, at 27 weeks, premature labour resulted in [REDACTED]'s birth. This 'whirlwind of events' marked a tremendously unsettling period for [REDACTED] and her husband, [REDACTED]. Yet, as we reflect on the wonderful gains [REDACTED] has made, we acknowledge the loving care and support provided by [REDACTED]'s immediate family.

Extreme prematurity and low birth weight bring, with them, the added anxiety of respiratory distress syndrome which results from lung immaturity. As well, a premature infant has a limited ability to suck and to maintain body temperature. The immune system is poorly developed and the baby is more prone to infection.

Early Feeding Issues

For the first week following her birth, [REDACTED] was fed intravenously. Then, nasogastric feeding of expressed breast milk was carried out for 8 weeks. Following this, [REDACTED] concentrated on establishing breast feeding and even 'roomed in' at the hospital to accomplish this. [REDACTED]'s suck was weak and she was only able to remain on the breast for brief periods. On discharge from the hospital, [REDACTED]'s feeds were being supplemented by bottle feeds of expressed breast milk.

Mild reflux was treated by adding Karikare to her feeds. Issues with reflux eased in the first 6 months, feeding improved and, under the watchful eyes of her family, [REDACTED] began to grow and flourish. Currently, [REDACTED] is able to cope with a normal family diet and consumes an appropriate variety of foods.

Mindful of all of the issues described thus far and looking towards [REDACTED]'s commencement of primary school, renewed attention was placed on the development of her language skills and the pressure of any risk factors associated with potential language difficulties.

The Impact of Prematurity on Language Development

Contemporary research highlights the importance of early intervention for children born at risk of developing language difficulties. Issues such as prematurity, low birth weight and infant respiratory distress syndrome are recognised risk factors.

Rhea Paul (1995) writes that "any condition that places a child's general development in jeopardy also constitutes a risk for language development".

We know that [REDACTED]'s earliest survival was dependent on a lengthy period of care in NICU. This meant that she remained in a noisy environment in which incubators, cardio-respiratory monitors and ventilators can sometimes generate noise levels over 85 decibels – creating a risk of an acquired hearing loss.

Premature infants may experience irregular respiration, colour changes, bodily instability including jitteriness and flaccidity, as well as disorganised patterns of alertness. This impacts hugely on a tiny infant's ability to participate in interactions with loved ones whose opportunities to hold, handle and play with them are already very much reduced. [REDACTED]'s precarious start in life means that her endurance and stamina for interactive functioning was compromised. Some traces of this compromise remain evident in [REDACTED]'s interaction in structured settings.

As we learn more about these issues, we are able to appreciate the potential such an at-risk infant has of encountering some difficulties in the acquisition of language skills, particularly as social and academic expectations gather momentum.

[REDACTED] and her family have overcome many difficulties and [REDACTED]'s remarkable progress leaves much to celebrate. [REDACTED] has grown to be social child with many age appropriate and communication skills. She is, by nature, shy and cautious with less familiar people and/or in strange settings. With maturation and increased self-confidence however, we can expect steady communicative gains to continue.

Setting the Goals

To this end, the goals for intervention aimed to enhance [REDACTED]'s social confidence and raise her awareness of the rewards of effective communication.

Specific Goals

To ensure [REDACTED]'s progress, the following areas were targeted:

- Review of feeding history
- Monitoring of hearing status
- Increased attention span in 1:1 and group settings
- Extended symbolic play
- Increased understanding of language concepts e.g. prepositions, pronouns, adjectives, negation and temporal terms (i.e. seasons, days of the week)
- Improved noun/verb agreement e.g. 'He is running, they are hopping'
- Improved clarity of conversational speech
- Improved ability to formulate questions clearly
- Improved ability to recount familiar events in a logical sequence
- Improved ability to use regular and irregular plurals correctly e.g. ducks, knives
- Improved ability to use irregular plurals correctly e.g. choose/chose
- Improved understanding of emotions

RECEPTIVE LANGUAGE

Throughout [REDACTED]'s involvement at the Champion centre, careful observations of her ability to understand spoken language have been carried out. Information has been gathered from [REDACTED] (in reference to [REDACTED]'s home environment), [REDACTED]'s Education Support Worker (in reference to her pre-school setting) and staff at the Champion Centre.

In addition to this, we are fortunate to be able to share in-depth analysis of [REDACTED]'s language development from the Language Research Project that is being carried out by Dr [REDACTED]. [REDACTED]'s work with children who have been born prematurely covers not only their transition into school, but continues to examine the socio-linguistic demands placed on them and their abilities to cope, during their first six months of formal education. [REDACTED]'s analysis of [REDACTED]'s language skills is included as an Appendix to this report.

CURRENT STATUS

[REDACTED]'s ability to understand what she hears is in the normal range for her age. However, in light of her history of ear problems (i.e. fluid in her ears), we need to remind ourselves of the possibility of [REDACTED] experiencing fluctuations in her hearing from time to time. [REDACTED] can be distractible and benefits from an occasional prompt to "listen." [REDACTED] continues to make steady gains in this area and is now able to:

- Comprehend a growing vocabulary
- Identify colours on request
- Indicate objects by function, e.g. "What do we cut grass with?"
- Understand location, e.g. high/low, behind, around
- Understand size, e.g. smaller/smallest
- Understand categories, e.g. clothes, toys, farm animals
- Understand quantities, e.g. every, most
- Understand quality words, e.g. different
- Understand opposites, e.g. tall/short
- Understand possessives, e.g. Samuel's biscuit
- Understand pronouns, e.g. they/them/theirs, us/we/ours
- Follow 2 –3 part instructions involving objects, e.g. "Wash your hands, bring your book and sit at the table"
- Anticipate and participate in regular routines without prompting
- Understand negation, e.g. not, don't, won't
- Understand temporal sequencing, e.g. before/after
- Understand emotions, e.g. tired, angry
- Understand and appreciate humour

In the last three months, [REDACTED] appears to have gained in confidence and she is very responsive in group activities. Shy by nature, [REDACTED] is beginning to blossom as a result of the caring support of her family and familiar adults. [REDACTED] is aware when she has done well and is motivated to please others. She is a caring, sensitive girl who clearly demonstrates the rewards of consistent, positive input.

Recommendations

[REDACTED]'s gains in receptive language can be maintained by:

- Ensuring [REDACTED]'s attention has been gained before providing instructions or making a comment
- Monitoring her hearing status – regular audiology checks should be continued
- Building on familiar tasks
- Fostering interactions with her peers
- Social praise when appropriate, to bolster her confidence

Regular classroom observations and consultations with all those concerned with [REDACTED]'s academic and social progress.

EXPRESSIVE LANGUAGE AND SOCIAL SKILLS

As with the recorded observations and reviews of [REDACTED]'s receptive language skills, all those involved with [REDACTED]'s care have also paid close attention to the development of her spoken language abilities. It

has been an absolute pleasure to observe [REDACTED]'s progress in this area and to share in her own sense of achievement when she knows she has expressed an idea, or related an event well.

CURRENT STATUS

[REDACTED]'s expressive language shows mild delay. However, her speech is clear and she is becoming an active communicator in social settings – particularly those in which games or activities are facilitated by a familiar adult. In the past three months, [REDACTED] has shown a growing interest in conversational exchanges with her own peer group. The development of special friendships will, no doubt, encourage further improvements in her oral language development.

Currently, [REDACTED] demonstrates the following skills in expressive language:

- Use of an extensive and growing vocabulary
- A keen desire to interact with others, not only in 1:1 settings but also in small group activities
- Increased social confidence means that she is now beginning to enjoy entertaining others
- Ability to express feelings, e.g. tired, sad, cold
- Ability to initiate verbal interactions, e.g. "Have you got any news?"
- Average sentence length of 5+ words
- Relates past events in logical sequence
- Asks for help in some situations
- Answers questions beginning with "What?" "Who?" "Where?" "Why?" "When?"
- Asks questions beginning with "Are?" "Do?" "Is?"
- Uses regular past tense correctly, e.g. smiled
- Uses regular plural forms correctly, e.g. coats, dolls
- Recites some rhymes/songs
- Names some objects according to function, e.g. "What swims?"
- Names some objects according to category, e.g. "A dolly is a toy."
- Uses pronouns appropriately
- Uses verb modals, e.g. can, will, might
- Uses conjunctions, e.g. and, because
- Names days of the week and seasons
- Participates in long conversations with support.

RECOMMENDATIONS


The development of [REDACTED]'s expressive language can be further enhanced by:

- Increased interactions with her peers
- Regular language-rich activities that encourage conversation, e.g. trips to the library, helping with baking, shared photo albums
- Provision of encouragement and praise for "good talking" during conversations
- Development of her literacy skills – reading/writing
- Regular monitoring of her hearing status
- Participation in musical activities
- Regular observations and consultations with all those concerned with her academic and social progress.

In conclusion

[REDACTED]'s enthusiasm for social interactions is developing well and I feel very privileged to have shared some knowledge and time with both [REDACTED] and her mother, [REDACTED]. As [REDACTED] embarks on her journey through her chosen school I wish her and her family much joy and many successes in the years ahead.

This report comes with my warmest wishes to them all.


Speech Language Therapist

D.O.B: [REDACTED]

Report Date: June 2003

The computers used at the Champion Centre are accessed by switches, the Concept keyboard and Intellikeys as well as by the keyboard, mouse and Microsoft Easiball. They are used to teach, reinforce and test concepts covered by the Speech Language Therapists and Early Intervention Teachers. Computer assisted learning is an integral part of weekly therapy at the centre. Initially it is used to see whether the child will attend to the screen and to check tracking and searching using all areas of the screen. Later, switches are introduced to teach cause and effect and turn taking and later still, children are encouraged to wait and anticipate an event in the screen before pressing the switch. The control of two switches one to scan and one to select is also taught. These switches are simple pad switches which require a press to activate. Many children are able to use the mouse. Although initially the Acorn 5000 was the main computer used, the Champion Centre now also has three PC.s. The wider range of programmes available on CD Rom are invaluable for the developmentally more advanced children and there are also some new, authorable switch operated programmes. New language and literacy initiatives have also been made possible.

[REDACTED] has attended fortnightly during the year, she was introduced to the computer at the end of May 2002 and started on the Acorn using two switches. [REDACTED] then moved onto the PC very soon after. She responds to the computer with attention, waiting for instructions, concentration and conversation. I have worked on Maths concepts involving number and size. She can match sets, seriate and name numerals. Language learning has involved prepositions, rhyming words and sequencing of pictures.

[REDACTED] has an individual overlay made of the Intellitalk programme with family names and familiar objects on. Using this overlay she can choose a word from the vertical list of words and pictures to build a short sentence, this is then printed out for her to take home. In this situation there are some words she recognises confidently.

[REDACTED] is a delightful little girl who enjoys computer learning and has great skills. I have very much enjoyed working with [REDACTED] and her mother, [REDACTED]

[REDACTED]

Computer Specialist

D.O.B: [REDACTED]

Report Date: June 2003

I have been seeing [REDACTED] for the past two years for group and individual music sessions. [REDACTED] was one of four prematurely-born children I worked with in a post-graduate research project at the Champion Centre designed to evaluate the effectiveness of a once a week, six-month music programme as a means to assist with daily routines, promote self-confidence and to provide an auditory system of mapping.

[REDACTED] attends my private weekly pre-school music classes, as well as having music at the Champion Centre. The music making offers safety, and the security to try new things, helping her build up an association of ideas, the associations with familiar songs and routines. The songs used in each session contained ideas, which [REDACTED] began making her own. She began to incorporate her own words, singing about what she was doing, singing questions and answers, and singing about her feelings. The songs have been of particular value in helping her with word order and correct closure of sentences. Music has been a powerful tool for memory, helping her to remember action sequences of a song and the words of songs.

[REDACTED]'s songs and musical play display a strong sense of beat. Her singing is becoming more expressive, confident and tuneful. She happily sings back an answer to a sung question and sings the goodbye song to me. Use of rhythmic pattern, tempo, dramatic pauses, repetition, and changing dynamics in a musical game are helping her become more tolerant of sudden, unexpected changes. Her mother reports that songs are now an important part of daily routines and are used by all family members for changing from one activity to another and are an integral part of [REDACTED]'s day.

As a result of musical games and songs, there has been a marked improvement in [REDACTED]'s expressive language, sense of humour, timing and movement. She is able to complete a sequence of jumping into three hoops and stopping on cue, or moving to a simple folk dance with a musical sense of timing, rhythmic flow and directionality. She anticipates well and enjoys one-to-one sessions as well as group music. Her listening skills have developed to the point where she can copy a rhythmic pattern such as "All the king's horses and all the king's men" on the drum and come up with her own rhythmic pattern for me to copy. She is able to copy a rhythmic or melodic pattern up to eight beats on the keyboard and recently watched me play a C major scale and then copied it on the keyboard.

Within group music [REDACTED] is playful and interactive. She listens extremely well responding to specific musical cues such as changing direction, playing fast or slow, loud or soft, or singing tunefully.

Her fine and gross motor skills have greatly improved through use of music games and finger plays. She concentrates well and likes to succeed. She takes great pride in playing the drum as I accompany her on the keyboard, or providing a musical accompaniment to books such as "Commotion in the Ocean". She has creative ideas and likes to contribute to our musical play. She is far more confident and outgoing in her weekly music classes and delights in a musical joke.

I have loved working with [REDACTED] and seeing her considerable progress in all areas of music making. I strongly urge that music-making be a part of [REDACTED]'s learning as songs help her to remember numbers, colours, sequences and also support her expressive language, pre-reading skills and movement. Words that she has been given at computer therapy, are often set to a simple song when she brings the words to music. Such strategies could be of great value in helping her remember and learn new concepts at school.

I wish [REDACTED] happy school days and wish her and her family every success for the future.

[REDACTED]
Music Specialist

D.O.B: [REDACTED]

Report Date: April 2003

Introduction

It has been a pleasure to work alongside [REDACTED] as her Education Support Worker since October 2002. [REDACTED] attended [REDACTED] Kindergarten on a regular basis 2²/₅ mornings a week, and I supported her for one of those days.

[REDACTED] has a kind and nurturing spirit with a wonderful sense of humour. She often arrives to Kindergarten with a smile, ready to take on whatever comes her way. She usually engages in an activity immediately after mat time without hesitation. She is quick to invite her peers as she ventures into the playground.

[REDACTED]'s enthusiasm towards kindergarten is well demonstrated through her willingness to take on new activities. She especially enjoys imaginative and creative play with others.

[REDACTED] is a sensitive child and will show signs of anxiety should any unplanned drills occur or is subjected to a loud noise i.e. fire drills, earthquake drills, fire alarm, loud bells, etc. In these situations, [REDACTED] becomes quiet and will withdraw herself from peers and activities. She requires adult reassurance and comfort to follow these drills through. A simple explanation and gentle warning before these drills occur will be most beneficial for [REDACTED]'s well being.

The following is a summary of [REDACTED]'s developmental achievements as observed during my work with her at [REDACTED] Kindergarten.

FINE MOTOR/COGNITIVE

[REDACTED] continues to make progress using fine motor skills. She thoroughly enjoys engaging in activities that involve: painting, gluing, cutting, colouring etc. She appears quite confident in carrying out most of these activities independently, however, may ask for assistance when using scissors, especially when cutting a curve.

- Names all her colours and some shapes (circle, square, triangle)
- Able to manipulate scissors to cut in a straight line
- Displays a right hand dominance
- Able to complete a 10 piece picture puzzle independently
- Able to manipulate a variety of writing tools: chalk, paint brush, pencil, markers
- Able to print her first name approximately independently

CREATIVE/IMAGINATIVE PLAY

[REDACTED] enjoys symbolic and imaginative play. She enjoys making party food with play dough and will organise a birthday celebration with her friends. She often shares ideas with peers as to who will take on what role. [REDACTED] especially enjoys being the Mummy.

The kindergarten often puts on *child hood plays* after mat time, which [REDACTED] is thrilled to be a part of. She will follow instructions from the teacher and will assume her role in the play. She especially enjoys dressing up.

[REDACTED] participates for the duration of music time and will follow the beat using instructions and will sing along. [REDACTED] made a guitar from cardboard and rubber bands and was happy to share this invention with her peers. She also took it along to her singing group to demonstrate for [REDACTED]

GROSS MOTOR SKILLS

██████ is confident to explore the outside world using her gross motor skills. She is happy to use most equipment independently and will ask for assistance if she feels unsteady. She enjoys climbing, swinging, hanging on monkey bars, using the slide, and a variety of other outside equipment. She rides a scooter around the kindergarten, following friends and playing the leader. ██████ is also able to jump forward and sideways. She is able to balance on a beam, however, sometimes seeks adult support. Most of these activities require a warm up; therefore ██████ is more limber and comfortable with taking on physical challenges.

SOCIAL/COMMUNICATION

Relationships with peers

██████ has been showing signs of confidence and enthusiasm towards playing with peers. She often invites others to play with her and will accept invitations to play with others. Her circle of friends seems to be growing as she meets new children. Often facilitation is needed for ██████ to initially meet others, however, once she becomes more comfortable and confident, she is quite happy carry out conversation and play independently. ██████ is content to play on her own, however, is delighted when asked to play with others.

██████ is learning to be more expressive in her speech. She tends to speak softly and is therefore encouraged to speak in a louder voice. ██████ is happy to contribute ideas in group settings with adult encouragement. When playing in a small group, ██████ is independent in sharing ideas around play and often directs imaginative play with peers. (Family corner – ‘Who will be the Daddy, Mummy?’ etc)

Relationship with Adults

██████ seems to have developed a trust and confidence in her Education Support Worker. When needing reassurance and emotional support, ██████ will share feelings of discomfort and she will say she is tired and needs a hug.

██████ has a wonderful relationship with staff. She often looks for them upon arrival to give them a welcoming greeting. She looks forward to sharing weekend stories and accomplishments with each staff member. ██████ responds well to adults and often displays confidence when approaching them. She will ask staff for assistance and complies with most requests. She will offer to help staff, seeking positive feedback and 1:1 attention.

SELF HELP SKILLS

██████ is independent in the self help routines at kindergarten. She carries out arrival routines, such as, printing and placing her first name on attendance board, putting her jacket and bag on hook, finding a space on the mat for mat time. She also knows the routines around washing hands and using the toilet before morning tea time. She is confident in following this through independently. She will take herself to the toilet without cueing, and is able to access toilet paper and wipe herself independently. The kindergarten is a familiar environment for ██████ to carry out the above mentioned toileting routine. It may be beneficial for ██████ to be given verbal cues and support until she feels confident in her new school environment.

Offering ██████ a safe and nurturing environment as well as including her in all areas of learning will ensure her successes in the classroom. She is a bright young girl with a strong willingness to learn and take on new challenges.

I wish her all the best as she ventures through school.

████████████████████
Education Support Worker

Appendix
[redacted] Language
Supplemental Information

Because [redacted] agreed to be part of a study of language and communication being conducted at the University of Canterbury in collaboration with the Champion Centre, a number of additional observations of [redacted] language skills are available. What follows will summarise the information and insights the study has so far provided. If any discussion or elaboration of these findings is required in order to serve [redacted] better in school, please contact Dr. [redacted] through either the Champion Centre or the Department of Speech and Language Therapy at Canterbury University.

[redacted] has no significant difficulties with language. I tested her using the Clinical Evaluation of Language Fundamentals - Preschool (CELF-P) test when she had just turned four-and-a-half years old, and her scores showed her to have a language level equivalent to her chronological age, uncorrected for her prematurity. In other words, compared to her corrected age, she is functioning above age level. This test provides insight into [redacted]'s understanding of linguistic concepts such as 'either/or', 'before/after', 'next to', 'first/last', etc. All of these concepts [redacted] responds to with confidence. She even correctly responded to the request 'Before you point to the bear, point to a tiger', which is complex because the order of pointing does not match the order in which the animals are mentioned (as opposed to 'Point to the bear before you point to a tiger', which is significantly easier). Other parts of the test show [redacted] to have a broad vocabulary, both for objects and for relational terms such as 'long', 'many', 'same' and 'different'. In fact for the latter group she is functioning well above age level. She also has excellent comprehension of both simple and complex sentences, and has all the word endings and grammatical words you would expect for her age.

As a conversational partner with adults, [redacted] is forthcoming and engaged, interested and interesting. With other children she often tends to be shy, hanging back rather than asserting herself. When I observed her at preschool she showed immense patience waiting in line for a turn at the tyre swing, enquiring gently from time to time when it would be her turn, but not with a forcefulness that impacted on the much more assertive child who had possession of the swing at the time. When she did eventually get her 'go' it was over in seconds because swinging on the tyre called for significantly more upper body strength than she has; so she just swung once and then flopped to the ground. As she gains strength and physical coordination, both her voice control and her physical capacities should improve.

In general, the only areas where [redacted] might give the impression that her language skills are weaker than expected are in areas where her lack of confidence in expressing an opinion can come to the fore. In a story comprehension task involving a series of questions, she frequently said 'I don't know', and was very reluctant to retell a story played to her on a tape. It is not clear whether it was genuinely difficult for her, or whether her lack of confidence made her not want to risk a performance that she knew would not be perfect. ✓ I rather think the latter, as with probing I managed to get the essence of the story from her, and it was clear she had understood the narrative very well. What seemed to be difficult for her was the act of retelling, not the comprehension of the story. This impression is supported by another story task I did with her in which we discussed the unfolding of a story in conversation with each other. In this sort of reciprocal exchange, she showed herself able to offer opinions, pose relevant questions, and respond to thought provoking questions. She even responded correctly to a complex question calling for a sophisticated understanding of what other people do and do not know, that very few of the children in the study were able to answer correctly. Then, when asked to retell this story to her mother, she was able (with the support of the pictures) to do so in detail and accurately. It seems that with interaction supporting the laying down of memories and pictures support her recall, [redacted] can perform well.

While [redacted]'s pronunciation is sometimes a little unclear, it is not in a way that compromises her ability to get her message across. Her rather small voice means that she risks not being heard above the crowd, however. Teachers will need to recognise that [redacted] has hidden depths that may not be immediately obvious in this shy child. Careful attention to what she has to say, however, will be well worth the effort. [redacted] is a delightful child who will flourish in school, and I wish her all the best for the years ahead.

TRANSITION TO SCHOOL REPORT



XXXX XXXX

DOB: 9th November 1997

THIS REPORT INCLUDES:

1. Introduction
 - Therapies XXXX has Received
 - Developmental Needs
 - XXXX's Strengths
2. Speech Language Therapy
 - Receptive Language
 - Expressive Language
 - Language Analysis by Dr. XXXX
3. Developmental
4. Occupational Therapy

- Gross Motor Skills
- Self Care Skills

5. Computer Assisted Learning

6. Education Support Workers Report

- Learning and Development in the Early Childhood Centre

7. Hand Out regarding Dyspraxia



**THE
CHAMPION
CENTRE**
Tamariki Toiora

Patron: Prof. Alan M. Clark
CMG, MB, ChM, FRAC
Director: Dr Patricia Champion
MBE, PhD

REPORT ON:

XXXX XXXX

DOB: XXXX

17 XXXX

Christchurch

Introduction

The following are transition reports covering the areas of XXXX's Receptive and Expressive Language, Cognitive, Fine and Gross Motor Development to date, with general comments included.

XXXX was born at 24 weeks gestation. She was referred to the Champion Centre by Dr XXXX, Associate Professor of Paediatrics, due to her extreme prematurity.

XXXX has remained under the umbrella care of the Champion Centre for the first five years of her life either in the form of monitoring and assessment, or for particular periods of intervention where regular weekly input was considered more beneficial to the desired outcome.

The premature birth of XXXX, 16 weeks early, is always a significant risk factor for the infant's ongoing development. XXXX has required help to achieve the remarkable developmental pathway she is now on.

As with all children who leave the Champion Centre at five years of age, it is our practise to provide some summary developmental information, across all developmental areas, which we hope will be beneficial in their next educational placement.

Briefly the programme's aims are:

- 1) To advance any child, for whom there has been significant developmental impact, towards their individual potential, allowing them to gain as much independence as possible and preparing them for inclusion in their local Pre-school and Primary School.
- 2) To strengthen and skill the families, of these children participating in the developmental programme of their children, to strengthen the relationships within the family and to develop skills and confidence to advocate for their children. This, being a family based programme, is carried out by the parents/caregivers in their home and community.

The therapeutic goals have been:

1. To avoid the acquisition of skills in isolation, aiming towards meaningful and integrated learning.
2. To maintain an ongoing assessment of XXXX's developmental shifts, changes and growth.

We work from the premis that the parent is the child's most important partner in the ongoing education or therapy plan. In the early years of a child's life they are essential partners in the work to bring their child into the social world.

At each weekly group session appropriate goals would be established for XXXX between each respective therapist and XXXX, XXXX's mother. These same established goals became a part of XXXX's Education Support Worker's programme. The rationale and working philosophy is the integration of social, health, cognitive, physical and emotional aspects of growth and development. Because there are multiple dimensions to a child's development, the early intervention team has needed to be prepared to integrate individual disciplinary skills into both child and family goals, even when they seem to have fallen outside one's disciplinary boundary.

On a more perXXXXal note, XXXX has been very committed to early intervention for XXXX. I feel that it is important to acknowledge that such a commitment as given by XXXX is never easy. It is often tiring and sometimes daunting. The challenge can appear enormous – some days, in reality, it has been. It takes courage, belief and energy “to stay the distance” – a fact we are most appreciative of. The stressors facing the family of a vulnerable and biologically at risk child are both complex and many. It really has been a pleasure and a privilege to work alongside XXXX, planning and attaining XXXX's developmental goals.

I have at all times valued those qualities of perception, knowledge and honesty which XXXX has brought to our work and which are evidenced in forming a very sound base for XXXX to learn from. The time spent working together with XXXX in partnership has been rewarding.

History

XXXX had a stormy neonatal course. She spent the first five months of her life in the neonatal intensive care unit and experienced nearly every complication associated with pre term birth. Of that five months, XXXX spend 60 days on the life support machine, and was dependent on axygen. Once home, XXXX relied on oxygen for a futher eight months and she has had a large number of health related problems involving every system of her physiology. XXXX has sustained many life threatening events. It is important to reflect here, particularly for XXXX that she was born at 24 weeks gestation with an extremely low birth weight of 615 grams, and her life starting off in a very, very fragile way.

Early gestation, low birth weight, fragility of early weeks, and the significant medical interventions which always happen to sustain life means that these babies, from a very early age, have already been through an enormous amount. XXXX has come from a place her peers have not had to. XXXX has made enormous adjustments, but the impact can still be seen.

XXXX has developmental delay due to her extreme prematurity as well as associated health issues and ongoing consequences. Just as the journey for XXXX has been complex so are the remaining systems issues. In particular:

- At birth XXXX had severe bronchopulmonary dysphasia. XXXX's lung remains consolidated as a result of respiratory distress syndrome. It will be many years before she will have good lung function. She is strengthening in this area.
- XXXX experienced severe feeding difficulties and required much support to come through these difficulties. Some trace impact is still evident. However, XXXX has really progressed well with this challenging area of her development.
- XXXX has had a history of chronic and severe ear infections in both ears. She currently has grommets and this winter has been relatively free from ear infection. Her hearing has been tested recently and found to be within the normal range.
- XXXX experienced introventricular (cerebral) haemorrhages in the early days after her birth. This in effect means she endured a stroke, with ongoing consequences.
- XXXX has a developmental Dyspraxia as a consequence of the complications of her birth. A query remains as to whether XXXX experiences minor seizures, both atonic and absence. Certainly at specific times throughout XXXX's development, these have been evident. They do not remain constant and are not currently evident. However, they were noted as an area of concern within the ORRS application and the presence or otherwise, of them should always be monitored.

Impact

Such a complex start to life appears to have compromised XXXX's regulatory system – her ability to adapt, self monitor, inhibit, anticipate, predict and resolve. XXXX can be impulsive and whilst she is cautious she does tend to arouse very easily both emotionally and motorically, and often takes quite some time to calm.

XXXX's difficulty with modulation, which is part of the regulatory process, results in her experiencing intense emotions without the system in place to resolve what she is experiencing. Added to this her difficulty with anticipation means she is often unable to see "what is coming", what may "happen" – so she is often "caught unawares". From day to day XXXX's systems can still be variable which results in an unpredictable and fluctuating response. XXXX can appear to have everything "in order" and yet on another day, she can present as being highly disordered.

I am in no doubt that XXXX experiences powerlessness and immense frustration at the variability of her own systems. Inferred throughout is the fact that through her systems XXXX receives variable information, experiences gaps in meaning, and struggles to isolate out distracting stimulus, affecting her ability to attend. These are neurologically based, "fine wiring" difficulties, rather than behaviourally driven difficulties.

XXXX

Up until this point we have described somewhat briefly, what has happened for and to XXXX. It is significant information and not without ongoing consequences.

Whilst attempting to understand those deficits that remain for XXXX, it is equally important to draw attention to her strengths and to her progress. The growth and change within XXXX is the best possible reaXXXX for celebration. XXXX is truly here. This tenacious, strong willed little girl gives of herself so much of the time. She tries very, very hard. Whilst we acknowledge that XXXX is fiercely determined, with an agenda all of her own, we also must note that this survival strength, this very drive has made it possible for XXXX to overcome what appeared to be insurmountable difficulties.

When we first met XXXX she was very quiet and watchful, reluctant to attempt tasks perceived as challenging, yet clearly so very pleased with herself when she knew she had succeeded.

XXXX has made particular progress in the time we have known, as her transition team. She is an increasingly responsive, engaging, motivated and joyful child whose self esteem and confidence is growing daily. XXXX is so much more verbally interactive. She will attempt tasks she finds challenging and her avoidance strategies have lessened noticeably in these task related activities. XXXX's attention span is increasing. This sometimes serious, cooperative, enthusiastic, quietly sociable, caring and sensitive little girl is certainly much more ready for school.

XXXX is still fragile. She still struggles to cope and that struggle frustrates her, making her inflexible, impatient and reactive – sometimes distressed. XXXX is often confused and bewildered but she persists particularly so, when she shares the learning task with a friend. It is almost as if the relationship based connections “fire” XXXX neurologically now. When buddied with her peers (whom she likes and who like her) XXXX responds differently.

In the face of remarkable development and many more appropriate skills, XXXX does remain vulnerable. Her development is not yet complete, the next five years will see significant changes within maturation of systems but it is important to reflect from time to time, whilst holding onto the expectation that further development will always be realised.

XXXX has consciously worked to achieve best possible outcomes for XXXX. She has been courageous and child focused whilst confronting some complex and perplexing challenges. The result is evidenced in XXXX, and the remarkable growth and progress she has made.

I would urge close consultation with XXXX as XXXX embarks on school life. She has intricate knowledge of where XXXX has “been” and what lies ahead of her. XXXX understands so well the full impact and the balance of it all, for XXXX.

XXXX

Team Leader

XXXX XXXX

D.O.B: XXXX

Report Date: December 2002

With regard to this particular report it is important to now look at XXXX's language development, to outline areas of strength and to outline those that remain vulnerable.

RECEPTIVE LANGUAGE DEVELOPMENT

Careful attention has been given to this area of XXXX's development. She has made considerable progress. However, this is a compromised area of development and remains highly at risk.

We have:

1. Used a strong sensory structure in which to establish concepts
2. Used frequent "cueing" and encouragement to regard detail, for added information
3. Used simple brief instructions in a face to face situation
4. Used gesture and demonstration to elaborate meaning
5. Encouraged XXXX to stay with the task until completion, to build meaning and memory.

The following vocabulary of PROPERTIES AND RELATIONSHIPS has been worked with. Understanding remains context dependent and consolidation has not been achieved within all situations.

<u>SPACE</u>	<u>QUANTITY</u>	<u>PERXXXXAL QUALITIES</u>	<u>TEXTURE</u>	<u>TIME</u>	<u>SIZE</u>
In/Out	All	Good	Hard	Again	Big
On/Off	None	Happy	Soft	Now	Small
Up/Down	Nearly	Sad	Wet	After	Long/Short
Under/Over	No more	Naughty	Dry	Soon	Heavy/Light
Through	Another	Angry	Hot/Warm	This morning	Empty/Full
Around	About	Clever	Cold	Today	
Beside	Other	Thirsty	Furry		
Behind	Only	Silly	Rough		
Inside	A bit	Bad	Smooth		
Outside	A lot	Hungry			
Top	Some	Kind			
Bottom	Enough				
In front of	Both				

Out of	Any			
Next to				
Away from		<u>MOVEMENT</u>	<u>QUALITY</u>	<u>SOUND</u>
Against		Fast	Like	Noisy
Back/Front		Slowly	Same as	Quietly
Backwards		Quickly		

XXXX selects objects or pictures that are the same. As well as:

- 1) Which one is NOT a
- 2) Which one belongs?

XXXX is able to make choices. Although with purely verbal choices, XXXX still chooses the “last choice” given, rather than necessarily the one she wants. She responds to “take”, “put”, and “give” and to two object commands.

XXXX is able to identify:

- a) Five senses by function, e.g. “What do you hear with?”
- b) Five objects by function, e.g. “Which one goes on your foot?”
- c) Five animals by action, e.g. “Which one flies?” – currently maintaining further consolidation.

XXXX is able to sort objects according to category.

She is able to sort which activities/events belong in the daytime and which in the night time. XXXX’s ability to problem solve and to plan is only beginning to emerge.

NB: In a group XXXX will be distracted and require the instruction to be repeated. For XXXX the understanding of language does remain both literal and contextual. Her response is variable as well as it being state and context dependent. XXXX does experience ongoing difficulty with understanding the language of her surrounding environment and with this in mind, school will certainly present new challenges.

The “hidden” curriculum of the school environment, the social interactions and rules will all leave XXXX exposed. She experiences significant gaps in her understanding of language and she is challenged by difficulties with organisation, processing of information and word retrieval.

She needs to be seated near the front of a classroom, with the least amount of distraction as is possible. XXXX has difficulty understanding where a task begins and ends; the instructions and organisation around tasks, and the purpose. These are both language based and planning difficulties (as seen in Dyspraxia). These difficulties result in increased distractibility because quite simply, XXXX does not always understand which “part” she is meant to be attending to. XXXX does not easily see how “parts” form a “whole picture”. She experiences fragmentation of information which is confusing and bewildering for her. Her response to confusion is easy to miss in that she becomes very quiet, withdrawn, passive or will protest and want to leave. It is important to understand these responses in the light of the neurological difficulties XXXX is dealing with. She is making wonderful progress. School will present a totally unfamiliar context of learning and XXXX may well

struggle to understand, on a daily basis. She will respond best to her new learning if time is taken to establish meaning, careful step by step instructions and teaching are given and XXXX is prepared or “warmed up” to learning, e.g. by using visual mapping. This technique works extremely well for XXXX for all new learning, transitions and more challenging tasks

Always instructions must be explicit not implicit, simple, repeated and affirmation given for how XXXX followed through appropriately.

Ongoing Issues

- XXXX responds to and learns best in a predictable, structured environment.
- It is vital that eye contact is made, (to reduce distraction), that her attention is engaged, and that she knows what is expected of her prior to learning. A prompt to listen followed by a prompt to look provides important cueing.
- XXXX does not always have the necessary receptive language. She will attempt to use skills of association, to fill gaps in her receptive language. XXXX often will know “about”, will be able to physically “locate” but as yet may not be able to recall the vocabulary that is required.
- XXXX relies heavily on visual clues to gain understanding of the context/environment/task. When instructions are given in a group, XXXX will watch to see what others in the group are doing and then follow. The variable response to instruction following does bring XXXX’s difficulty into a sharper focus.
- New Concepts need to be highlighted. The number of concepts presented at a given time should be limited to only a few.
- Information presented out of context and in a random manner will be confusing and will mean XXXX will “lose track” of the topic being discussed.

Positive Aspects

<i>Active Learning:</i>	XXXX participates in learning tasks and demonstrates motivation. She requires facilitation to take the initiative. XXXX does not, as yet, easily ask for help. She will still tend to sit passively and wait. It is difficult for her to understand them, to get started, and how to follow through to complete. This is an impact of plannings difficulties (Dyspraxia).
<i>Awareness:</i>	XXXX responds to directions and recognises critical information.
<i>Communication Skills:</i>	XXXX’s oral communication skills enable learning and interactions. XXXX is increasingly interactive, co-operative and engaged with peers, with whom she has a friendship. Word finding difficulties do compromise the interchange and XXXX still waits for the peer to take the initiative. She will follow.
<i>Information Processing:</i>	XXXX processes incoming information when presented at careful speeds and limited amounts.
<i>Self Control:</i>	XXXX can work in spite of distractions when <u>engaged</u> .

XXXX will settle to activities well now – however when something new or different occurs, XXXX can still become frightened and upset.

Interactive Learning: XXXX engages in simple meaningful dialogue and interaction with communication partners. She gains information from books, and is beginning to ask as well as answer questions. Sometimes XXXX responds to the last part of the information given rather than the whole question.

Persistence: XXXX can stay on task until it is completed.

Recall: XXXX is following simple directions accurately and she is increasingly displaying more accurate memory for information.

EXPRESSIVE LANGUAGE DEVELOPMENT

This area of XXXX's development has been particularly pleasing with rapid changes occurring in the last six months. It has been one of the most compromised areas of XXXX's development.

[A] XXXX uses the following parts of speech, contained within short sentence structures.

1. Nouns
2. Prepositions
3. Adjectives
4. Verbs – present
5. a) Pronouns
 - “I” is emerging and more frequently present, “You”, “It”, “that”, “this”, etc.
- b) Third Person Pronouns - “Me” – this is still used most frequently
- c) Possessive Pronouns - “My”, “Mine”
- d) Possessives
 - XXXX uses the morpheme ‘s to denote possession, e.g. “Mum’s bag”.
6. Regular Plurals
7. Present Participle “ing”
 - e.g. “Washing my hands”
8. Negation
 - XXXX uses the morpheme “n’t” to denote negation, e.g. “It isn’t”

Sentences contain information carrying words. The grammatical, syntactical development, whilst immature, is emerging.

[B] XXXX also uses extended meaning:

1. To indicate the existence of people, objects, events
2. To obtain desired objects and services
3. To regulate other people's actions including:
 - a) Protest
 - Attention
 - = “No”
 - Mum”
 - b) Rejection
 - = “Don’t”
 - c) Requesting
 - = “watching

“Look at

me”

4. To initiate, maintain, or terminate social interaction including:
 - a) Greetings
 - b) Conversational turntaking – “Not your turn, my turn now”
 - c) Farewell
 - d) XXXX is able to share new information but needs scaffolding.
 - e) She is able to make comments as she looks on at another perXXXX.
5. To give information
6. To obtain information by asking questions - this requires much more work but is beginning to develop.
7. To answer questions – XXXX is able to respond to “Yes” and “No” questions correctly. She is able to answer simple questions with correct response and information. However, this is an area of variable response and can be state and context dependent, as well as being dependent on recall and word retrieval. XXXX does find it difficult to maintain her focus with language based activity. Her attention can drift. This is understandable, in the light of all that she is dealing with. However, it is important to support XXXX to “stay with” the task and attend to the information.

It has been important to prompt XXXX to look at the perXXXX talking to her, to give XXXX more cues on the conversation.

XXXX has had a difficult developmental path for her expressive language. Whilst XXXX will still take an observer role, particularly in new and unfamiliar situations, she is increasingly verbally interactive, with her peers as well as with trusted adults, which is wonderful to see and hear.

XXXX experiences some difficulty with organising her timing and co-ordination of speech. This may present as a dysfluency. The co-ordination of breathing and speaking remains immature. The impact of XXXX’s reduced lung capacity as well as planning difficulties, in the form of Dyspraxia, certainly impact on XXXX’s speech.

XXXX does want to engage in conversation. To hold a perXXXX’s attention whilst she finds adequate vocabulary to express her thoughts/ideas. XXXX will use a filler, e.g. “um um um”, or the perXXXX’s name as in “Mum, Mum, Mum”. XXXX uses inflexion as well, realising her needs to hold the perXXXX’s attention for a little longer! This is an area that still holds an element of frustration for XXXX.

XXXX is increasingly matching her verbal expression with her non-verbal communication appropriately. Wonderful use of (as well as appropriate) facial expression, intonation, inflexion to bring added meaning to the message XXXX is conveying. This is significant for those of us who have known XXXX for some time. XXXX has taken a much longer time to develop a “typical” response to life. She has often seemed expressionless, emotionless passive. This is not so now. XXXX uses a much fuller range of facial expression and vocalisation. Whilst she still is not easily able to read the facial expressions of others she is much more able to reflect her own emotions and respond to the emotions of others. As is evident, this is still a

challenging area for XXXX and does require more nurturing, to allow for ongoing growth and development.

XXXX may still be a little unsure of her own ability. She prefers to do “one thing at a time” – this may mean that she does not verbally respond whilst “doing”. It is important that people give XXXX time to answer. Not answering is not the same as not knowing. XXXX needs to know what the expectation is. She is worried by getting things wrong. Sometimes it is supportive to rephrase or reiterate. It is vital that XXXX’s knowledge is not under estimated. However, it is equally vital to XXXX to still have her “language knowledge” grown!

Because of XXXX’s history, she has not experienced being a confident communicator until much more recently. She does not like to feel unsafe or to fail. So whilst her skill is much improved within communication (certainly she would most often know what she wants to say) XXXX can still be vulnerable, and still feel exposed and unsure especially in group situation.

XXXX does have a left-sided weakness remaining. Issues of oro-motor weakness and tonal difficulty, whilst significantly lessening, also remain.

XXXX has experienced significant feeding difficulties, particularly remaining evident with the timing of swallowing fluid. She has found it difficult to initiate and execute oro-motor movements, e.g. lip/tongue exercises and has been challenged and frustrated by these.

Currently XXXX’s speech has significantly improved. Articulation difficulties remain more particularly in the substitution of sounds. Clarity, whilst much improved, is still variable on a daily basis, over which XXXX has little control.

The adult interaction of a trusted adult is important for XXXX. Clarity, consistency, warmth, trust and calmness make adult relationships safe for XXXX to respond within. These relationships also facilitate peer interaction. XXXX works very hard at containing herself and coping. She is learning to self monitor and pace herself. XXXX doesn’t find this easy.

XXXX’s sensory systems remain somewhat immature. This can mean certain situations will result in “overload” for XXXX or anxiety.

XXXX does still tire. The events of a day may still be more exacting of XXXX than for some of her peers – and this does affect responses.

XXXX is beginning to hold ideas, create thoughts, imagine possibilities, and she is beginning to talk about them. She is talking so much more and her timidity is really decreasing. When all things come together in just the right way XXXX is much more an equal conversational partner!!

INCLUSION

XXXX will need help with games. She still tends to sit on the periphery. This may well be because XXXX does not understand the language or cannot keep up with the quickly changing rules.

XXXX will need help to develop:

Skills to initiate, negotiate social judgement, interaction, setting up of play, entering a game:

- e.g. a) How many people do we need?
- b) Who would you like to be with?
- c) How will we ask them?
- d) How do we show them the way to play the game?
- e) How do we take turns?
- f) Do we need to wait? How can we wait?

Within the Social Interaction Context we need to bear in mind that XXXX may have difficulty with subtleties –

- a) of interaction
- b) of shifting ground
- c) of negotiation

XXXX will need to be taught:

- a) How to take cues from other children
- b) How to read emotion

XXXX can find it very difficult to moderate her own response. She still needs to be nurtured in relationships, and supported with ways of coping and in being with others.

Conclusion

It has been a pleasure to share in a small part of XXXX's development. The change and growth in XXXX has been truly exciting and remarkable. XXXX's first years of life have been complex and challenging. She has overcome so much, but none of it on her own. XXXX has been by her side, and her most loyal advocate. XXXX, in her own right will bring many special qualities to her school community. She, in turn, will be enriched by what she receives.

This report comes with my very warmest wishes and appreciation to both XXXX and XXXX and to their family for the future.

XXXX
Speech Language Therapist

APPENDIX: XXXX'S LANGUAGE SUPPLEMENTAL INFORMATION

XXXX agreed to be part of a study of language and communication being conducted at the University of Canterbury in collaboration with the Champion Centre. As a result, a number of additional observations of XXXX's language skills are available. This appendix will summarise the information and insights that the study has so far provided. If any discussion or elaboration of these findings is required in order to serve XXXX better in school, please contact Dr. XXXX through either the Champion Centre or the Department of Speech and Language Therapy at Canterbury University.

Overall profile

XXXX is significantly delayed in her language development and will need support in the classroom. She does, however, have much more language competence than she might at first appear to have. It will therefore be important that her teachers observe her carefully in a variety of contexts, and work hard to make her relaxed and emotionally connected to her peers in order to reveal the full extent of what she can do.

Articulation

XXXX finds many final consonant sounds and all consonant clusters ("sk", "st", "fl" etc.) very hard. Frequently her final consonants are omitted, although in some words they are not only pronounced, but almost overly clearly. The word "duck" for example has a loud and very pronounced "k" sound on the end. The result of her difficulties with consonant clusters results in, for example, "square" becoming "dere", "toothbrush" becoming "doopush", etc. Her sound substitutions are logical and typical of younger children, and most probably stem from low muscle tone combined with difficulties with motor planning.

XXXX's articulation difficulties can impede her capacity to be understood by those who are unfamiliar with her. However, over the period of time in which I have been studying XXXX, her speech has become quite a lot clearer, and my impression is that it will continue to do so. I would be extremely hesitant about attempting to work directly on her speech at this stage because what XXXX needs most is a focus on what she can achieve rather than on what she finds difficult. I will try to describe her

assets below, and believe that finding ways to encourage engaged communication with others should take precedence over what are in the end purely physiological issues of articulation. As will be demonstrated below, XXXX thrives much more in an environment where she is “connected” to others, and every effort needs to be made to help these connections.

Expressive language

XXXX’s capacity for combining words into utterances is fairly limited for her age. She does best when her communications are scaffolded by an adult who gives her the opportunity to express herself in short sentences. When this is done, she is capable of producing utterances such as “He don’t sleep like that”, “Like (to) fly a kite”, “You put food in there” and “supposed to put it like that”. I engaged XXXX in talking about some pictures that showed absurd things like a man with a bucket on his head and a girl writing with a banana. In that situation, and scaffolded by my questions, she was fully able to explain what was wrong with each picture. She had no trouble seeing the visual problem, only with trying to construct a linguistic account of it. The following extract is typical.

I am showing XXXX a picture of a horse going up stairs that are obviously those in a house. (E = SFC; C = XXXX; XXX represents untranscribable words)

E What's wrong there?

C XXX walking that.

C The horse.

E The horse.

E What's the horse doing?

C Um de Walking.

E He's walking.

E Where is he walking?

C um up the stairs.

E Absolutely.

E He's walking up.

E Do you have a horse climbing upstairs?

C No.

E Oh.
C I had.
C I had a horse in my.
M Yeah you've got a real horse.
E Oh, so you have.
E But this one looks like a real horse.
C Yeah dat's XXXXX.
E Oh.
E That's a nice one isn't it

In this extract, XXXX is able to use short phrases to express what she can see. She also, adds to the information and takes the topic into a new sub-topic by talking about her own toy horse. This shows not only that she has understood the topic, but also that she is able to bring her own experience to bear on the conversation at hand.

Another of the pictures showed clothes hanging inside an oven. Here is how XXXX responded:

E What's wrong with that one?
C You put food in there.
E You put food in there!
E Exactly.
E You do.
C Yeah.
E You don't put your socks in the oven, do you?
C No you put it in that in the (closet).
E You put it in the closet.
C Yeah.
E That's right.
E Absolutely.
E And you put your food in the oven.
C Yeah.
E I don't know what the perXXXX who did that was thinking.
E Crazy, huh?
C Mm.

Here, XXXX's contribution is spontaneously more complex and again she adds information of her own. She also continues to take part in the conversation as I develop the topic a bit. The importance of scaffolding interactions with XXXX in order to give her a chance to engage cannot be stressed enough. I have watched XXXX "clam up" instantly when a direct question was posed to her for which a complex answer was required. She will answer yes/no questions, but other questions are harder for her, particularly in front of other children. In fact, speaking up in front of a group of children, for example at mat time, is not yet something XXXX is able to do. She will not repeat modeled language (such as greetings to the teacher), answer questions or offer things for "news", even if she has left home prepared to do so. (In fact, efforts to encourage her to speak in a group will be greeted by increasing resistance and withdrawal.) However, as other evidence suggests, she is able to produce much more complex language than this behaviour might suggest in a classroom setting.

XXXX often produces stretches of language that have the intonation and stress patterns of much more complex language, but without the segments being understandable. This suggests that she has a good memory for the overall tune of longer utterances, but has trouble with the sequence of words that make them up. This analysis is supported by her performance on a sentence repetition task involving repeating what the protagonists in a story had just said, where it was clear that while she understood the longer utterances, she was not able to reproduce exactly any but the very shortest. I have the impression also that memory plays a role in word retrieval as she sometimes seems to be at a loss to remember a word, but as soon as that word is contained in someone else's utterance, she is able to produce it herself. Providing words in this way is part of what scaffolding the interaction with XXXX can do for her.

From a structural point of view, XXXX is able to use a variety of grammatical forms, including "-ing" forms ("putting", "riding", "sleeping"), and pronouns ("hers", "him", "herself"). She almost certainly has other forms, but these are obscured by her pronunciation problems. In English, final "s" for example is used as a third person singular marker ("The baby sleeps"), as a possessive marker ("The girl's shoe"), and as a plural marker ("Two caterpillars"). Because XXXX has difficulty pronouncing a final "s",

these forms often do not show up in her speech. This does not mean, however, that she has not learned them.

At home, XXXX uses language effectively to direct the actions of those around her. She can engage in imaginative play and can put on a funny voice to speak through a puppet. She understands the value of language in affecting the world around her, and also understands the power of not talking, using it frequently when the environment becomes too confusing or overwhelming.

Receptive language

As with all children, XXXX's receptive language is in advance of her productive language. However, the difference between the two is quite large for XXXX, and often leads to frustration when she cannot explain what she wants. However, a range of tasks she has done as part of the research project suggests that she has quite considerable powers of comprehension.

XXXX responded correctly to a number of items on the Clinical Evaluation of Language Fundamentals test which I administered when she was four years and eight months old. These included ones calling for an understanding of "and", "but", "when", and "after" in initial position in the sentence. She also showed that she understands "inside", "empty", "first/last", "cold", "long", "alone", "dry" and "hard". In addition, the subtest on sentence structure suggests she certainly understands prepositional phrases such as "in the wagon" and "under the chair". On the other hand, she is still working on acquiring (or was, at four years and eight months) "either..or", "then", "next to", and "some", as well as other more advanced linguistic concepts. She had trouble with complex sentence structures involving past tenses, "because" clauses, clauses joined by "and", and other structures of greater complexity.

Getting a full picture of her abilities from such a test is, however, difficult. One problem is that it is not always clear she understands the task, and this can obscure the accurate evaluation of her comprehension. For example, on some items she responded correctly initially, but then continued to point to other pictures in the test booklet. This could be because she could not inhibit the response or it could be because she

was unsure of the task, and continued to point to other items as a result. Moreover, XXXX is easily discouraged in all things, and will often prefer to say she does not know, or simply to abandon the interaction. My response during the project was to suspend testing and try again on a different day, picking up where I had left off. Trying to carry out a whole test in one sitting would be totally inappropriate for XXXX. A much more accurate view can be obtained by taking her lead and doing the test in pieces.

XXXX loves stories and story books, and this is something which can and should be actively exploited by any teacher. Stories take the “heat” of the focus off XXXX herself and allow her to explore and understand language more indirectly. A task in which XXXX was read a story and then had to answer direct comprehension questions showed that she had absorbed what she heard quite well. Interestingly this story, which is about a little girl who gets lost, made an immediate and sincere emotional connection with XXXX who became quite agitated thinking about the situation (not that she has ever been lost herself). One wonders whether her ability to remember what happened in the story was enhanced by this emotional connection (even though she found it scary), particularly given the role emotional connection with others seems to play in XXXX’s interactional involvement (see below). She seems to be a little girl whose systems fire better when emotion is involved. One hopes that this can be encouraged; though only with positive emotions!

Conversational skills

XXXX has “good days” and “bad days” in terms of her capacity to interact with others. I have video-taped her at kindergarten on two separate occasions with quite different results. On one occasion she was smilingly engaged with another child; followed that child around; copied the turns of phrase and intonation of those around her; and appeared to be settled and comfortable taking her place in the group. On the other occasion she was withdrawn and unresponsive, not making eye-contact with other children, and displaying none of the vivacity and engagement she had shown on the first occasion. It is not entirely clear what the difference between the two days was, but it may well have been the lack of emotional connection with another child in the second case. The difference between the two occasions should serve to forewarn teachers that XXXX’s contribution and engagement in the classroom is likely to be

quite uneven from day to day. A possible approach, however, would be to give her every opportunity to make and keep “a buddy”. One feature of the child with whom XXXX was engaged in the first instance was that she acted as something of an interpreter when XXXX’s speech was not understood. I overheard this child telling others what XXXX wanted and what XXXX was saying. A good “buddy” for XXXX may well be one who can serve this function.

Conclusion

XXXX is a child who is at one and the same time compromised in language and has hidden depths of competence which can be easily underestimated. There is no doubt that various aspects of XXXX’s language development are delayed; but at the same time, basing assumptions about what she understands or can say just on how she presents in the classroom would seriously misrepresent her capacities. In addition, XXXX’s response to not understanding or not being sure of herself is usually passive, and it will take an attentive teacher to monitor when she disengages, often marked by a dreamy staring into the middle distance. XXXX will not usually attract attention to herself when this happens; but unless she is drawn back into the programme, she will build a very piecemeal impression of the life of the classroom.

XXXX
Research Coordinator

XXXX XXXX

D.O.B: XXXX

Report Date: December 2002

It has been a pleasure to work with XXXX and her mother, XXXX. XXXX is a delightful little girl who is rather shy and verbally reticent but is becoming more communicative. She comes readily to participate in the developmental activities at clinic, is co-operative, attentive and is making good progress with cognitive and fine motor skills.

XXXX learns new concepts and skills when taken slowly from her current point of knowledge to the next step. The steps need to be small with a visual presentation of material likely to achieve more success than auditory requests. Sometimes XXXX appears to have mastered a new concept but then a week or two later seems to have lost that knowledge. An example would be her ability to count to five, but then soon after she could only manage to three (moving from three to eight, nine). Just recently she has returned to counting to five. She does need the opportunity for repetition of a new skill with time to practise, consolidate and generalize it. When challenged by a difficult task XXXX can become anxious and may need gentle reassuring to proceed with it.

XXXX's good progress must be attributed to her caring and supportive family.

FINE MOTOR SKILLS

Fine motor skills include the development of eye/hand coordination and control enabling XXXX to manipulate small objects and tools for exploring and interacting in her environment. The development of these skills has enabled XXXX to begin drawing, printing, and cutting. XXXX is right hand dominant and the following fine motor tasks are ones she has successfully demonstrated at clinic:

- building with small blocks vertically, horizontally, and making a bridge using a longer block over two cubes.
- threading beads, buttons on to cord or a shoelace.
- manoeuvring counters, bottle tops, buttons, rods, etc. onto matching shapes on cardboard.
- sticking pins into coloured dots on polystyrene.
- putting tiny plastic pegs into holes on wood.
- unscrewing and screwing up bottle tops.
- putting duplo pieces together.
- spinning colour wheels in games.
- opening clothes pegs to peg onto card.
- putting together plastic chains (Link' in learn), needing a little help.
- lacing stitch on a sewing card (with cues for up or down with the needle).
- using plastic keys to open and close locks.

Printing and drawing

With a crayon or pencil XXXX can copy or draw on request lines and circles. Recently when asked to draw a square she did so with three good straight sides and one slightly rounded side. On the same day she drew the first independent K I had seen her do, and also an m and s.

XXXX is able to use a whiteboard marker on plastic covered paper to trace along paths of about one cm in width, moving from one point to another in various shapes and directions, starting and stopping at the correct place. This activity is beneficial for developing motor planning and control and has led onto simple mazes and dot to dot pictures.

XXXX is able to draw simple figures such as a person or a house independently.

Cutting

XXXX is cutting with good control, although may go a little too rapidly, and is able to cut out a picture outlined with either a square or circle. She may need a little cueing such as 'stop and turn the page'.

Colouring-in

XXXX enjoys colouring-in pictures using crayons or felt pens. She is able to use vertical or horizontal strokes, shows good control keeping within the boundaries and changes colours for different parts of the pictures.

PRE-ACADEMIC SKILLS

Pre-reading skills

XXXX enjoys having stories read to her and will also look at books independently. With familiar and favourite books such as 'Meg the Cat', 'Boom, Boom, Boom' she will read the stories out aloud. She is able to hold a book the right way up, turn the pages from left to right and has some well-developed perceptual skills including the matching of cards; pictorial, abstract or patterned with up to about 12 cards. XXXX can match half-pictures to their matching halves (top and bottom halves or side by side sets). She can find objects or pictures that are different in an otherwise identical group.

Comprehension skills are in evidence with tasks such as sorting pictures according to function (clothes, toys, food, etc) or matching by association (e.g. toothbrush to toothpaste). Other conceptual tasks have included matching animals to their houses and baby animals to their mothers. To begin with these tasks are best done with a limited choice available, such as being given one picture and requiring XXXX to select the matching one from two or three pictures. We are working on sequencing tasks of ordering pictures to tell a simple story such as an apple being eaten until only the core is left.

Puzzles

Success with puzzles depends on an integration of perceptual and cognitive skills as well as fine motor control and manipulation. XXXX has been developing the

necessary attacking techniques using concepts of size, shape, colour and the logical positioning of pieces (such as heads at the top of people or wheels at the bottom of vehicles).

XXXX is able to complete form boards, insert puzzles and simple jigsaws of up to approximately ten pieces. With more complex jigsaws she relies on support such as suggestions to turn a piece around or try it in a different place.

Colours

XXXX can match, select and name the common colours: red, blue, green, yellow, pink, orange, purple, brown, grey, black and white.

Pre-mathematical skills

XXXX is making good progress with this area and is starting to develop the skills necessary for beginning the school maths programme. The following are some of the skills XXXX has demonstrated at clinic with reaXXXXable consistency:

Number:

- counts to five pointing one-to-one. She will point to more and give a number but not necessarily in the correct sequence.
- matches sets to at least three (using dots or pictures on cards or objects).
- matches numerals to five.

Size:

- selects the smallest or biggest object from a small group of objects and will seriate five objects such as blocks or pictures.

Shape:

- matches small common objects (combs, toothbrushes, safety pins, pegs) to their outlines on cards or pictures to their silhouettes (about 6 at a time).
- matches and sorts a range of shapes and will select a circle, triangle and square.

Pattern:

- copies a simple pattern using shapes, bottle tops, counters, etc. and can also place these objects onto their outlines on card.
- can continue on or copy a simple alternating pattern using objects like knives and forks or pegs and blocks. She can copy a repeating pattern of three with either shapes or colours.

Tactile matching:

- can match objects by touch such as cups, blocks, stones, plastic animals.
- can match different textured surfaces by touch.

Best wishes to XXXX for her future schooling.

XXXX

Early Intervention Teacher

XXXX XXXX

D.O.B: XXXX

Report Date: December 2002

XXXX has received Physiotherapy and Occupational Therapy services since entering this service in June 1998. She was born prematurely at 24 weeks gestation, with a birth weight of 615 grams. Her extreme prematurity resulted in amongst other issues, severe complications of Bronchopulmonary Dysplasia and Grade 3 Bilateral Ventricular Hemorrhages. She was on oxygen for many months and sustained re-occurring pneumonias until her fourth year. XXXX initially presented with left sided weakness, resulting in asymmetry during motor activities, which remained evident until June 2002. She also had a history of persistent falls, which were initially thought to be related to her physical asymmetry. As the presentation of these 'falls' changed from October 2001, XXXX was reviewed by Dr XXXX XXXX, with the possibility of seizure activity raised. XXXX's presentation fluctuated during 2001-2002, with periods of stability for approximately three months, followed by two-three weeks of 'falls' and 'blank' episodes. From the descriptions given, Dr XXXX, thought it likely XXXX was presenting with both Atonic and Absence Seizures, and that while they were episodic in nature, she did not require medication. XXXX has reported intermittent falls up till July 2002. Should the frequency, nature or severity change, Dr XXXX recommended that XXXX should be medically reviewed.

The focus in Occupational Therapy for XXXX for the past year, has been to maintain symmetry between left and right sides of the body, extend balance and stability skills for function and play, develop ball skills, learn to ride a trike, and support developing self-care skills. These goals were then extended to incorporate short, game sequences of two-three steps, involving turn-taking skills. A wide range of activities were used, including suspended equipment, balance beams, bat/ball games, outdoor playground etc. Activities were discussed with XXXX, with pictures drawn (mapped out) on a small whiteboard, to establish the plan and assist development of attention, memory and sequencing skills.

CURRENT STATUS

XXXX presents as a beautiful, blonde, shy little girl, of average height. Her muscle tone remains on the low side with hyper-mobility at the joints in both arms and legs, however XXXX now presents with endurance and stamina for walking, trike riding and physical play for lengthy periods (up to $\frac{3}{4}$ hour), in contrast to the previous year. Sensory systems have developed and matured in the past two years with XXXX demonstrating increased tolerance to a range of auditory stimuli, and confidence and enthusiasm for moving equipment, and tactile activities.

Gait

XXXX's presentation of low muscle tone and poor joint stability impacts on her walking style. She tends to walk with hyper-extended knees, with some pronation of the feet (rolling in), due to poor stability at the ankle joints.

Steps

XXXX presents as right dominant when walking up and down steps, as this was her stronger side. She will often take a quick step down with her left leg, due to decreased control in the quadriceps muscles, however this has recently improved, as extended trike riding has increased strength and stability in the left leg. XXXX is able to walk up and down steps with alternating feet, however this changes if the height of the steps vary and they are too steep.

Sit/stand

XXXX tends to mostly lead with her right leg, using her hands for support.

Squat

XXXX tends to half squat, rather than lower herself to a full squat position. As the strength in her quadriceps improves, she should achieve this position more readily.

Balance/jumping/hopping/running

As balance skills are dependent on stable joints, symmetrical movements and muscle tone within the normal range, XXXX has struggled to master challenging balance activities. Fluctuating seizure activity has also impacted on sustaining, acquired balance skills at different times, resulting in frustration, despair and the occasional “I can’t do it”. Should falls, asymmetrical jumping etc reappear, re-occurring seizure activity should be considered.

XXXX is now able to walk forwards along a wide beam independently, with alternating feet. On a narrow beam she sustains three steps unassisted, however can balance on a rocker/wobble board independently, while throwing bean bags, and can balance and weight shift laterally on the edge of a large tyre unassisted. XXXX can jump forwards now, with bilateral lift off and landing, and sustains a jumping sequence at ground level up to eight times, and on a tramp 20 times. She has been introduced to the concept of backwards and sideways jumping and jump rope, however has found these more complex sequencing tasks difficult to achieve. XXXX achieves hopping with one hand held, favouring her right leg. She is able to run, however her style is compromised by weak quadriceps, resulting in a slapping, flatfooted gait, with vulnerability to falls.

Ball skills

XXXX has been introduced to a range of ball skills, within a simple, turn taking game concept. She is able to accurately throw underarm to a target, within 1.5 metre distance, attempts bowling over-arm, can sink a low basket, from a one metre distance and strikes a ball from a stationary position, e.g. T Ball, or hockey. XXXX can kick with her right foot, however finds ball catching more difficult and requires measured and controlled cueing in, e.g. “Look, Ready, set, catch XXXX”. She no longer turns her head away during catching, however is best with a soft, medium sized ball, should she be unprepared and mis-time her catch.

Upper body skills

XXXX is able to suspend her body weight while hanging from a trapeze bar, or monkey bars. She uses an overhand grip, and can sustain her grasp for 20-25 seconds, while swinging, before releasing and landing. Though her upper body strength and

tone has improved XXXX still has difficulty releasing one hand, reaching across and grasping another bar, unless assisted. As she is very determined to succeed in this activity, she finds this incredibly frustrating and becomes quite upset when she can't get it right. Placing a container upside down under the bars has provided her with alternative foot support, allowing her to work alternating hands across the bars.

Other, e.g. swings/trike riding

XXXX can now ride a trike!!! This is a fabulous achievement, which took over two years to finally 'come together'. XXXX has persisted through low tone and weak quadriceps, fluctuating left-right asymmetry and balance, due to seizure activity, and planning and sequencing difficulties. The mastery of this activity is yet another indicator of this little girl's spirit and determination. She is an awesome kid! XXXX also enjoys swings and can self-propel this from push off. She climbs ladders, manages slides and can also propel a junior scooter.

Sensory

Due to her extreme prematurity, XXXX has presented with a compromised and vulnerable sensory system. Auditory sensitivity has been significant in the past, particularly to loud and unexpected noises, with XXXX either becoming distressed, moving away or covering her hands over her ears. Additionally, she is unable to then process auditory information in XXXXg or instruction, as the pitch/intensity of sound overwhelms her vulnerable system. When this is also combined with speed and expectations of responding rapidly with fast actions, XXXX is unlikely to be able to participate or keep up. Her sensory-motor system cannot process both loud/high pitched sound with speed, plus action response, at this time. A low, slow pace, with repeated actions to allow XXXX to learn a new skill, works best at this time.

SELF HELP SKILLS

Eating: XXXX eats a broad range of food, using a fork/spoon independently with some spillage occurring. As with many young children, she has some difficulty opening commercially packaged food, and will require some assistance in this area. She is able to drink liquids from a cup/sipper bottle, however may require cueing/assistance to use a water fountain at school.

Dressing: XXXX is able to undress with minimal assistance, however requires continued support to dress, particularly in placing and organizing her clothing correctly, to fit to her body. This appears to be a combination of a visual perceptual difficulty combined with some planning and physical organization issues. XXXX also finds small buttons, clasps and zippers frustrating to manipulate, as muscle tone and dexterity in the fingers is also compromised.

Toileting: XXXX has now developed the sensory awareness to recognize the need to go to the toilet. She is able to differentiate between bowel and bladder urges, and is wiping herself after toileting. She requires supervision to ensure her clothing is adjusted correctly, and hands washed and dried.

Grooming: XXXX requires assistance to brush her teeth, however manages to use a tissue, wiping around her nose and disposing of it appropriately, if reminded. She is also able to wash and dry herself, following a bath/shower, and assists with washing her own hair.

Strengths

- Strong spirit and sense of survival
- Determination and persistence despite frustration
- Willingness to learn new things
- Ability to give and receive love and affection in relationship
- Loving, nurturing family

Areas ongoing

- Delays in physical skills development, particularly balance, ball and fine motor skills
- Planning and sequencing issues, particularly in bilateral and sequencing tasks
- Immature sensory system, particularly auditory sensitivity
- Intermittent seizure activity, influencing all learning and sensory motor development

Management Strategies/Teaching Techniques Used

- Clear, consistent, routines and expectations
- Short, step by step instructions, with drawn (mapped) pictures, followed by demonstration for new motor activities
- Individual rehearsal of more complex tasks, prior to group participation
- Sequential and graded activities to practice skills, and ensure ongoing success, i.e. task broken down into small, achievable steps
- Instructions limited to no more than two at a time, with repetition as often as need

Summary

XXXX is a delightful, five-year-old child, who was born extremely premature. Her survival is clearly an indicator of her strong spirit, supported by medical technology and her very loving family. She has been a delight to work/play with, as has her mother XXXX, who has supported XXXX so persistently, competently and with such depth of understanding of her daughter. I wish XXXX and her family well, with many happy school days ahead.

XXXX

Paediatric Occupational Therapist

XXXX XXXX

D.O.B: XXXX

Report Date: December 2002

The computers used at the Champion Centre are accessed by switches, the Concept Keyboard and Intellikeys as well as by the keyboard and mouse and the Microsoft Easiball. They are used to teach, reinforce and test concepts covered by the Speech and Language and Developmental therapists and computer assisted learning is an integral part of weekly therapy at the Centre. Initially it is used to see whether the child will attend to the screen, and to check tracking and searching, using all areas of the screen. Later switches are introduced to teach cause and effect and turn-taking, and later still children are encouraged to wait and anticipate an event on the screen before pressing the switch. Learning to control two switches one to scan and one to select a choice, is an important bilateral skill involving motor planning. This precedes mouse use but many children are also able to use the mouse with skill and confidence by the time they leave the Centre. Although initially the Acorn 5000 was the main computer used, the Champion Centre now also has three PC.s. The wider range of programs available on CD Rom are invaluable for developmentally more advanced children, and there are also some new, authorable switch operated programs.

XXXX started using the computer in August 2001. She was able to understand cause and effect and was able to match quite complex pictures on the Concept Keyboard. She did however find the motor planning involved in moving a switch to control the highlight box difficult. She was able to sort objects by category, such as transport, food, and was able to point to three objects according to size and soon moved onto four objects. She was sensitive to loud noises or XXXXgs, Happy Birthday being a particularly unpopular one! Because of her expressive language difficulties and the lack of facial expression she showed, she was encouraged to imitate facial expressions and identify emotions shown on the "Alex" program - an on screen figure of a child. XXXX appeared to enjoy the efforts of Alex and of the therapist in imitating him but did not imitate herself although she did attempt an upwards/downwards movement of the tongue after a few weeks. She was initially a reserved and serious child but gradually "thawed out".

For the remainder of 2001 XXXX consolidated her use of switches which she did slowly and deliberately, and was beginning to use the mouse as well, while working on concepts such as the opposites, full and empty, long and short. She also worked on a dressing sequence and at that stage toileting was a focus and she was shown a program which sequenced toileting with a child's voice describing the actions. She was able to seriate five objects with verbal cueing such as "find the next big/little one" and was sequencing first two colours in a repeating pattern, then three with some help. It was very clear that XXXX wanted to learn and even on days when she would rather have been playing outside she would make a real effort to do the programmes which were presented to her.

XXXX gradually worked into familiar programmes in 2002, she no longer needed the

toileting program, and appeared to have forgotten nothing over the holidays. She was able to identify pictures of faces showing the emotions, happy, angry and sad in both photographic and stylised pictures. One to one counting was a focus and this was done in as many different computer settings as possible. She enjoyed an on-screen jigsaw where she had to place three missing pieces, worked on matching letters and also on sequencing two pictures to complete a three part story. As several of XXXX's family members are enthusiastic readers XXXX had shown an interest in the written word and soon was matching family names competently and was then able to recognise them as well. She appeared to have a distinct preference for letters rather than numbers and was able to match competently on the computer words which are frequently used in books, but which she had not necessarily worked on herself.

Although she was not particularly enthusiastic about it, XXXX worked on matching identical and then dissimilar sets (which she was able to do with up to three objects with some cueing), as well as being asked to select a number of pieces of fruit using the mouse. She was also asked to match geometrical shapes to their outline, and to position facial features on an on-screen face, apart from some hand on hand weight to control the mouse, she was able to do this.

Work continued to be done on spatial concepts such as inside and outside a circle, next to and beside, above and below a line, front and back, first, next and last. Concepts of quantity such as a bit and a lot, as well as odd, different and what doesn't belong in a set of identical objects initially, and then in a category were further speech goals, as were the concepts of movement backwards and sideways. The imitation and identification of emotion goals stayed in place with XXXX viewing my efforts with amusement. However she was able to understand information about more subtle emotions such as puzzled and lonely when put in a school/preschool setting "He is puzzled, he doesn't understand what the teacher wants him to do" and "He is sad, he doesn't have anyone to have his lunch with" and it was hoped that this would help her to communicate her own feelings when she got to school.

In Term four XXXX has been preparing for school. She is able to select secondary colours although she had some difficulty with grey and brown, she now understands inside and outside a circle but needs to work on below a line. She has under a line. She is able to find the biggest red square and the smallest pink triangle, i.e. objects by size and colour, she is able to order pictures to tell a familiar story, e.g. pouring Coca Cola into an empty glass, blowing up and bursting a balloon, lighting a fire. She is still not entirely confident with number, will sometimes count aloud and will often stop when she has enough, e.g. "Give me four apples". She has worked on sentences beginning with "This is" and "Here is" and enjoys reading the printed story at home. She is able to seriate five objects independently using the mouse.

XXXX is a lovely little girl with a shy perXXXXality. She takes a little while to warm to a relationship but appears to enjoy familiar people. She wants to learn and is patient and determined in acquiring skills. She is delighted with success and responds well to praise. She does not always understand requests unless they are simple and clear and her apparent tardiness in responding should not be attributed to "behaviour". I have much enjoyed working with XXXX and her very supportive mother, it has been an absolute delight to see her blossom in both skills and confidence and I look forward to hearing of her progress at school.

XXXX

Computer Specialist

XXXX XXXX

D.O.B: XXXX

Report Date: December 2002

It has been by absolute pleasure and privilege to work alongside XXXX as her Educational Support Worker. I initially met XXXX, her parent XXXX and XXXX, and her brother XXXX and XXXX when support was commenced in the home from 14th February 2001. As XXXX's confidence increased as she successfully and happily made the transition to XXXX Kindergarten on 23rd April 2001. XXXX's attendance at kindergarten was always regular.

XXXX is a quiet sensitive child. New experiences initially can bewilder and frighten her. She will express "I can't" or turn away when faced with a new challenge but often verbal coupled with graduated physical support is enough to allay her fears. When XXXX feels safe with her environment she enjoys learning. She benefits from an adult checking that she is paying attention, maintaining concentration and is involved. Appearances may sometime s indicate that XXXX is not engaged in activities around her and it is important for a supporting adult to check that she has heard and understands instructions or directions given. This is especially true in a large group situation. XXXX will model the physical movement of her peers, e.g. moving back to their desks but she may not have understood the next part of the instruction e.g. what to do or get ready when she gets there. XXXX displays a high level of independence and will insist "I do it myself" but direction is needed to ensure she is completing a task correctly. This level of independence can also mask her need for assistance and supporting adults must intervene with the correct model.

XXXX thrives on a busy interactive environment. She wants to be with her peers and be involved in their activities. Adult facilitation is essential to bring this to an optimum level. XXXX's enthusiasm for knowledge, e.g. "I can write" is very evident as she embarks on her journey into school.

"Following is a summary of XXXX's developmental achievements as observed during my work with her at XXXX Kindergarten.

FINE MOTOR/COGNITIVE

XXXX's fine motor skills continue to develop as has her concentration and ability to stay focused and engaged on tasks for extended periods. XXXX benefits form adult encouragement to finish or extend an activity she is working on. XXXX is right-handed dominant. XXXX is making progress with the following:

- Beginning to print the letters in her name. Light hand over hand assistance or prepared outlines is required. XXXX is able to recognise her complete name on the name chart at the beginning of session.
- Use scissors independently at collage and is able to cut paper and cardboard for construction work.

- Matching visual game cards, e.g. lotto activities using pictures, shapes and limited letter (mainly those derived from her name)
- Early math's skills are emerging. XXXX can count one-five although this is not consistent. She will often verbalize one, two, eight. Modelling and frequent repetition are essential to consolidate her counting skills.
- Seriation is emerging and she can sequence two objects to make a pattern.
- Draw a square with minimal verbal cueing.
- XXXX enjoys puzzles. With simple puzzles of several pieces she only requires minimal verbal prompts. XXXX finds intricate puzzles more difficult and assistance is needed to prevent her becoming frustrated and leaving it unfinished.
- XXXX enjoys books and quite happily looks at them independently and as part of a group listening to a story. She knows the correct positioning of a book and to turn the pages from left to right. XXXX is able to answer simple questions relating to the context of a short story book.

CREATIVE/IMAGINATIVE

XXXX participates in the following ways:

- Enjoys symbolic play. She particularly enjoyed the family corner where she would happily be "mum". This was an area of play within the kindergarten environment where XXXX was perhaps the most confident with her peers. She would contribute ideas as to how she felt the play should develop, e.g. 'we have to go shopping etc'. This area of play provided a wonderful platform for initiation and learning. Whilst XXXX would use props appropriately she remains very reluctant to use dress-up costumes etc.
- Symbolic and imaginative play has more meaning for XXXX if there is movement or music involved. XXXX enjoys and will actively participate in loud group music activities where there is a theme or directional
- When painting XXXX is able to name colours she selects. She enjoys using a wide range of colours and mediums, e.g. brushes, rollers, textures etc. XXXX uses paints creatively and with meaning.
- XXXX created some wonderful work in the collage area with particular attention to detail. A favourite for XXXX has been Peter Pan where she would go to great lengths to construct a house complete with bedding for Peter to sleep in!

GROSS MOTOR

XXXX enjoys being outside and this is often her preferred area of play. XXXX will verbalise a strong sense of independence in physical activities but this can sometime mask a need for adult assistance. She will hang suspended from bars for an extended period but will be unable to release her grasp without support. Adults need to be aware as XXXX's fierce desire for independence can compromise her physical safety in the playground or at gym activities.

- Balance skills are emerging. XXXX is able to walk along narrow and wide planks across varying distances. Variation in height will depend on whether adult assistance is required.
- XXXX is confident to climb onto and jump off low heights independently.

- Continues to develop good ball skills – catching and throwing are enhanced when XXXX remembers / encouraged to look and keep her head up.
- XXXX runs independently. The necessity to change direction and negotiate obstacle in her path can vary.

SOCIAL COMMUNICATION

Relationship with Peers:

XXXX enjoys being with her peers. She is a child who thrives on having a relationship with a friend or buddy. This relationship gives XXXX confidence to express herself vocally and to try new challenges. XXXX has developed the ability to state a conflicting opinion and in a relationship where she feels safe will confidently state, “I don’t like it”. XXXX is confident in the amount of speech she offers but her peers can sometimes have great difficulty understanding the content of her conversation. Adult facilitation is essential to ensure that her peers have understood XXXX’s attempts at communication. If this does not happen social interaction will pass and XXXX will tend to remain socially isolated and thus her confidence level will decrease. This will be equally important in the classroom where XXXX may experience difficulty volunteering information in a formal situation, e.g. in front of the class. She is more at ease verbalizing with visual concrete activities, e.g. responding to questions about a story she has enjoyed.

Relationship with Adults:

XXXX identified with myself and the teachers at kindergarten. She needs to feel safe with an adult before she will verbally respond or volunteer information. It is important she greets adults on arrival making eye contact and is encouraged to say hello/good morning. If she is actively engaged XXXX has the inclination to listen attentively and to respond appropriately.

Self-Help Skills:

While adult facilitation is essential for XXXX she has a high level of self-help skills. She is able to put away and care for her belongings, access her lunch-box, use the toilet independently. When XXXX is aware of routines and the location of material, e.g. where to get her reading book she will be self-sufficient in the classroom.

CONCLUSION AND STRATEGIES FOR THE CLASSROOM ENVIRONMENT

XXXX’s strengths lie in her enthusiasm and curiosity for new knowledge. XXXX has a strong desire to be with her peers and to be actively involved in all activities happening around her.

XXXX’s learning in the classroom would be greatly enhanced with:

- Simple explanation of the classroom routines, location of materials, position of book folders etc.
- Instructions for XXXX should be very clear with adults modeling the activity where appropriate and checks made to see she has followed and understood the instruction.

XXXX will need verbal support and visual cues to break lesXXXX plans down for her while working at her desk.

It is important to give XXXX a verbal warning/preparation time if an activity is about to end or if there is a change in routine in the day, e.g. assembly, interchange etc.

XXXX may need to be refocused into an activity if she appears distracted or not engaged. New skills and concepts would need to be taught in small steps.

XXXX would benefit from sitting at the front when on the mat.

XXXX will need adult facilitation to promote communication and interaction with her peers.

Adult facilitation will be beneficial for XXXX to share news etc. in group situations. XXXX can feel very vulnerable in unsure situations and it is imperative for XXXX's future involvement in the classroom curriculum that she feels 'safe' and confident to respond and offer ideas in front of her peers and teacher(s).

Regular assessment of XXXX's learning and her understanding of the classroom curriculum.

XXXX's steady progress, her interest and motivation to participate as her skills have grown, her ability to persist – all of these characteristics would not be as evident today without the tremendous support she has from her mum XXXX, dad XXXX, brothers XXXX and XXXX. I wish XXXX much happiness at school and to XXXX and XXXX- thank you for all your support.

XXXX XXXXXXXXX

Education Support Worker

